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THE JOURNAL OF HIGH-END AUDIO

MAY/JUNE 2024

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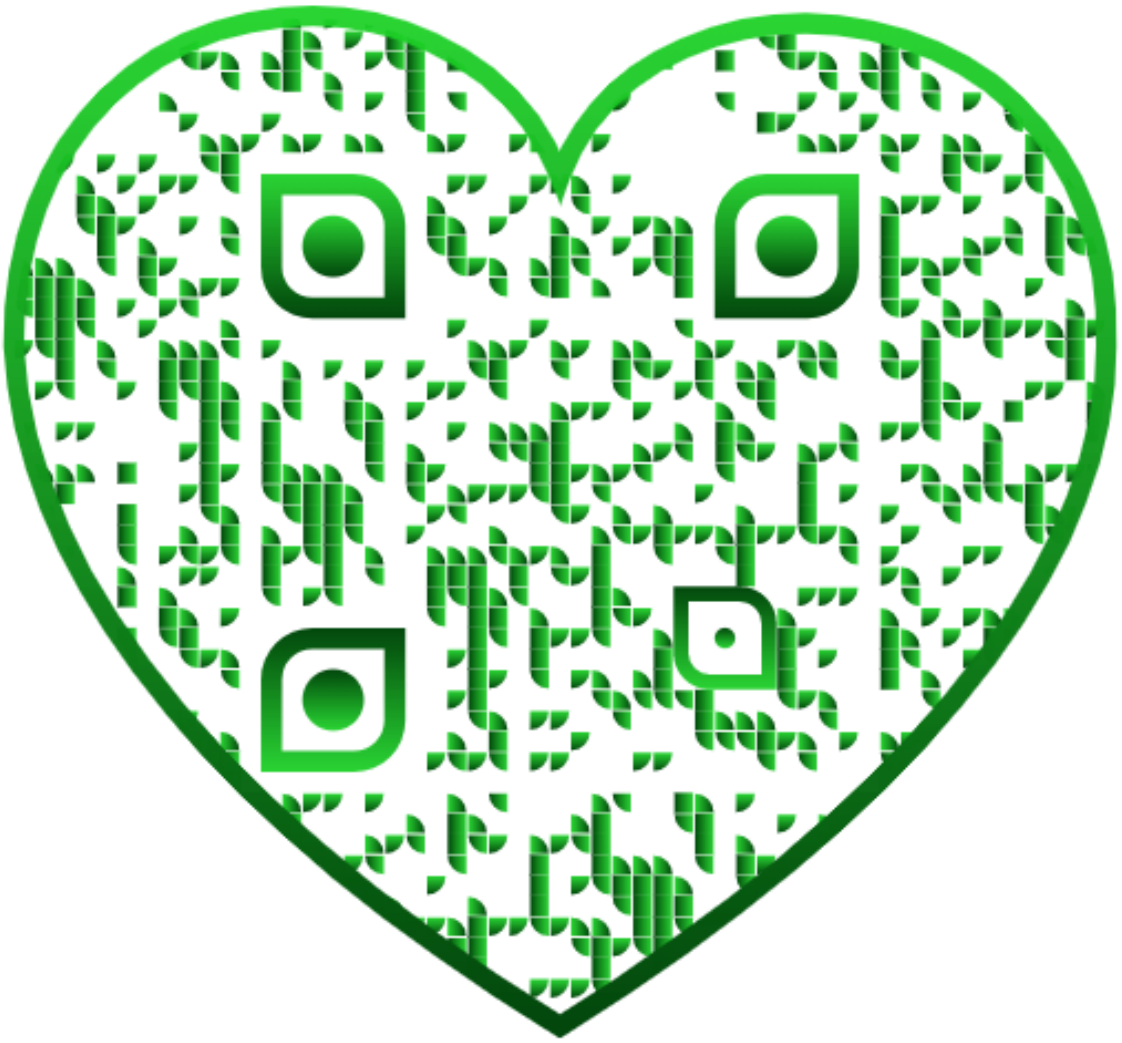

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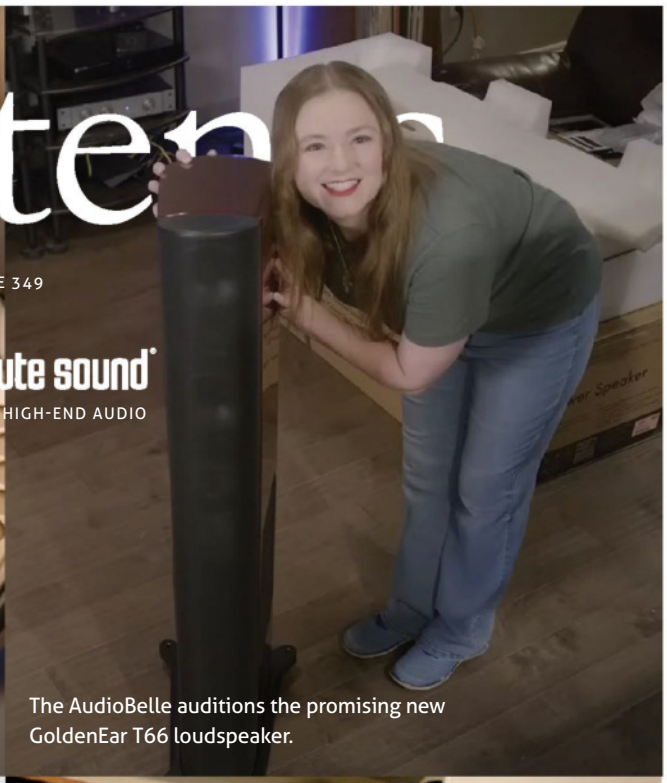

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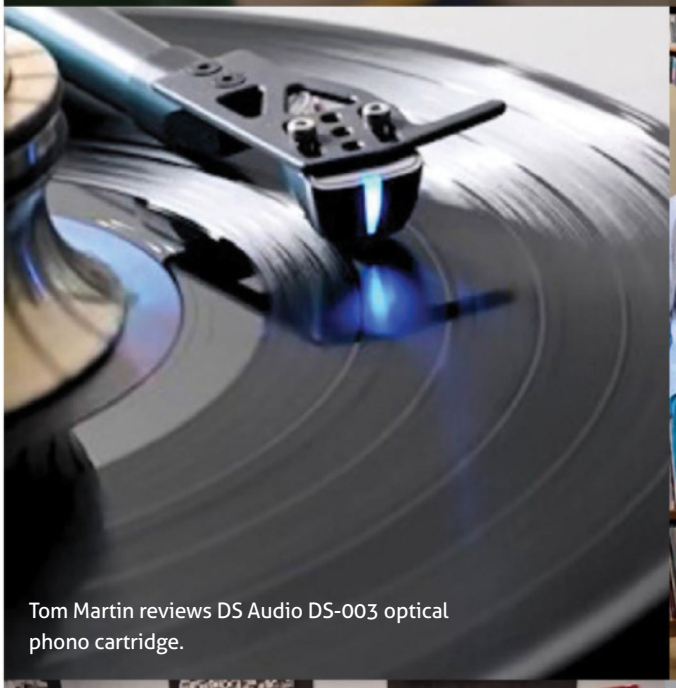

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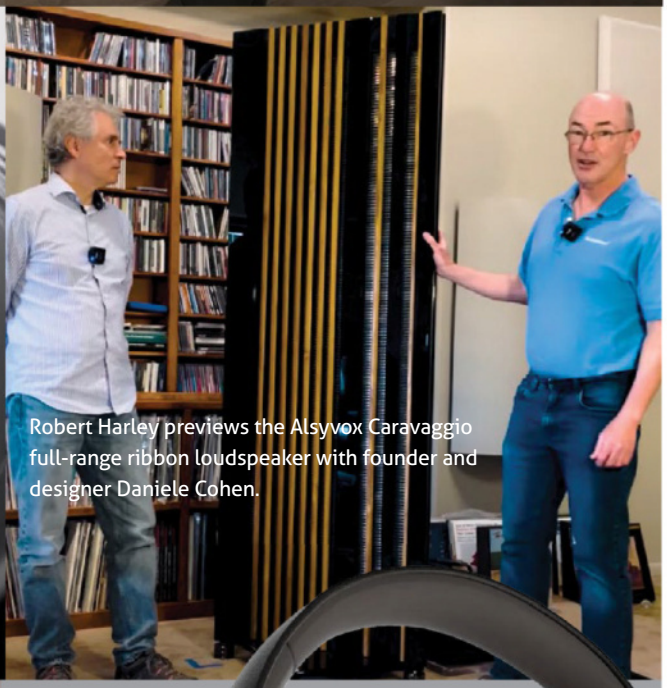

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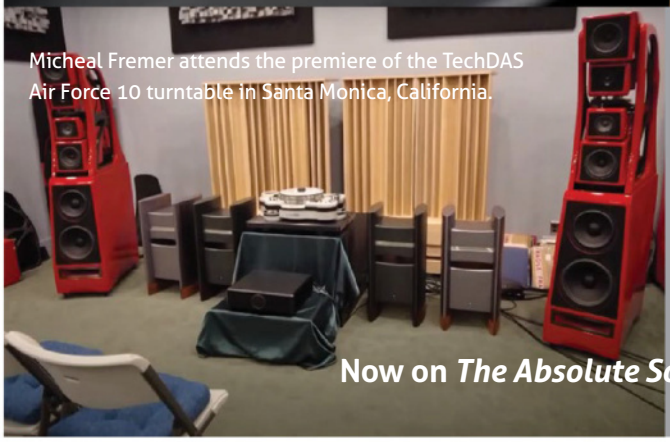

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Over the past 12 months, we've released several performance upgrades and new features for dCS owners. We delivered a major firmware upgrade for the dCS Bartók and launched the next generation Bartók APEX. We also added digital volume control and volume lock to the dCS Lina Network DAC, allowing listeners to use the DAC as a pre-amplifier in two-channel audio setups.

The Lina Network DAC 2.0 update brings several new features that are designed to enhance performance, aid ease of use, and give listeners more control over their playback experience.

It is available to new and existing Lina Network DAC owners and is provided free of charge.

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Pictured: Lina DAC (top), optional Master Clock (bottom)

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Letters

Email the Editor: rharley@nextscreen.com **or:** TAS, 2500 McHale Ct., Ste. A, Austin, Texas 78758

Anthony H. Cordesman's Passing

It was indeed sad to hear of Tony Cordesman passing [*In Memoriam, Issue 348*]. I eagerly read his reviews in *The Absolute Sound* back when it was a pocket edition and ever since. I always enjoyed his review checklists; he was intelligent, interesting, and entertaining. Tony, HP, John Nork, Bob Reina, Frank Doris, David Wilson, and Tom Miller, whose in-depth review of the MartinLogan CLSes led me to purchase them. It was indeed a terrific speaker. The reviews from HP and the whole crew also led me down the path for my system of that era. After reading Tony's large cartridge survey, I bought three of the cartridges he recommended. Tony's reviews were always high quality, informative, and entertaining.

RIP Tony, and thanks for the articles.

Jeffrey Sadowsky

A Happy Subscriber

I just wanted to compliment you and your production team on a job well done. Your recent covers have been uncrowded and inviting, the paper used is a pleasure to handle, and the fonts and graphics used throughout the magazine are excellent.

None of that would matter if the content were less than excellent. It is a pleasure to see the magazine evolve. I'm a happy subscriber.

Greg Franklin

Avantgarde Trio Mystery

My February issue arrived the other day, and in reading Jacob Heilbrunn's review of the Avantgarde Acoustics Trio G3 speakers I wondered if something was missing. Midway through the article Jacob writes, "The result was that I…but why put the cart before the horse?"

I don't see the "result" Jacob says he'd return to. And the final page of his review does not have the TAS logo that appears at the end of each article. Perhaps that's because the next page continues with Paul Seydor's comments, but I found myself wondering, "What was that result?"

Could it be that Jacob bought the Trios? Given his associated equipment, clearly cost is no object for him. Still, I'm wondering.

Geoff Mirelowitz

RH replies: Jacob did, indeed, purchase the Trio G3, complete with four Basshorns.

Flawed LPs on High-End Turntables a Waste?

A friend recently bought a turntable to get into vinyl playback, and I jokingly said, "It's a nice novelty." He frowned at me. I own three turntables, one an Oracle with a moving-coil cartridge, so I was comfortable with the insight.

To make my point clear I used an example from your February issue's review of the Oswalds Mill Audio K3 turntable that cost over $400k. It's an outstanding example of engineering and clearly a conversation piece in anyone's home, like artwork. With those resources, I would spring for the CH Precision P1 phonostage and get the setup to over $500k.

I am not aware of any records produced specifically for a $500k setup. This $500k setup plays the same LPs that I play on my $5000 turntable, and that record is subject to the same manufacturing flaws.

I have no disagreement with people spending on these marvelously engineered products (duh, I do it myself) and the status and conversation aspect they bring, but there is so little said about the input source—the LP itself—that questions the real value of high-end turntables. Has LP manufacturing quality risen to the point that we can take it for granted and continue to put our money and effort into the turntable and phonostage? When I play some LPs, especially older ones, the surface noise, clicks, and pops are more annoying on my higher-quality setup, and I cannot go out and just buy a higher-quality LP.

How do you see it?

Philip Gundy

RH replies: The staggering modern advancements in turntables, tonearms, and cartridges continue to reveal unexpected detail and musicality in LPs. It is astounding that the LPs themselves, even those made decades ago as mass-market products, are not the limiting factor in LP playback quality.

UPCOMING IN TAS 350

- **Full report from the AXPONA show**
- **RH on the Alsyvox Caravaggio full-range ribbon speaker**
- **MF on the Wilson Benesch GMT turntable**
- **JV on the Analog Audio TP-1000 open-reel tape machine**
- **Estelon XB Diamond speaker**
- **Luxman D-07X disc player, DAC, transport**
- **DS Audio Grand Master EX optical cartridge**
- **SOtM sEQ-100 phonostage**

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From the Editor

An Uncompromising Ethos

I was reminded recently of high-end audio's devotion to the highest ideals after receiving a copy of *Vivaldi in London*, a direct-to-disc recording of the Italian chamber group Interpreti Veneziani performing Vivaldi concertos. This double LP was recorded and released on Chasing the Dragon, a small perfectionist British label that creates records of only the highest artistic and sonic merit.

Listening to this LP and thinking about what went into its creation sparked a renewed appreciation for our industry and the people who bring it into existence. Specifically, it was the direct-to-disc aspect of *Vivaldi in London* that drove home the extraordinary passion that animates high-end audio. I suspect that the business case for bringing nine musicians from Italy to London to record Vivaldi concertos in a world-class studio on cost-no-object equipment may be marginal at best. But to record the sessions direct-to-disc is a whole other proposition.

Unlike the products of most industries that exist solely to generate profit, many of the high-end's creations, from hardware components to recordings, range from labors of love to artistic expressions. *Vivaldi in London*, and particularly its direct-to-disc creation, exemplifies the high end's uncompromising ethos in the pursuit of musical realism. To better understand that ethos, it's worth looking at just how challenging it is to record direct-to-disc.

It's easy to think of a direct-to-disc session as simply a regular recording session that happens to store the signal directly on a master lacquer rather than on tape. But there is no parallel between the two approaches. A conventional taped recording session is a walk in the park compared to recording direct-to-disc.

Direct-to-disc recording is not for the faint of heart; it is hair-raising in its musical and technical challenges. First, the musicians must record the entire LP side with no mistakes. The pauses you hear between tracks on the LP are actual pauses of the musicians in the studio. There are no overdubs, edits, splices, or fixes after the fact. Each side of a direct-to-disc LP is an honest musical document of 20 or so continuous minutes of real music-making.

The technical challenges are no less daunting. The mixing engineer must create a two-channel feed on the fly from multiple microphones, with no ability to later change the mix, tonal balance, or signal levels. The cutting engineer running the lathe has only one shot to get a good lacquer; he can't rewind the tape and put on a new lacquer to start over.

But perhaps the most perilous aspect is the absence of a "preview" signal. In conventional disc mastering from tape, this is a signal taken from a second playback head on the tape machine a few inches in the tape path before the actual playback head. The preview signal controls the cutting computer to continuously adjust the groove spacing based on the music's upcoming signal amplitude and bass content. The preview signal anticipates the signal about to be cut, widening the groove spacing to accommodate approaching loud signals and narrowing the spacing during quiet passages. The LP's 22-minute playing time would not be possible without this variable pitch.

But of course, there's no preview signal in direct-to-disc recording. Instead, the cutting engineer must know the music intimately, anticipating changes in dynamics and bass energy, and adjusting the groove spacing by hand on the fly as the musicians are performing. If he gives the grooves too much space, he will run out of room at the end of the disc. If he gives too little, the grooves will crash into each other, ruining the lacquer.

All this—the musicians performing an entire LP side with no mistakes, the engineer getting the balance and levels perfect, the cutting engineer accurately hand-adjusting the track pitch—must happen at the same time while the musicians are playing.

Given these extraordinary challenges, why would someone go to the trouble and expense simply to remove one tape generation from the recording chain?

To ask that question is to misunderstand high-end audio in its purest expression. We don't ask why Mahler didn't make his job easier by composing for fewer instruments or why Vermeer went to so much trouble to get perspective right. The creation of some recordings is an artistic act that is driven not by what is practical or expedient, but by an artistic vision.

Recording in this way is an act of love and devotion, and we as listeners are grateful that such uncompromising passion exists in the world.

Robert Harley

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Linn Klimax Solo 800 Amplifier

Linn's latest high-performance monoblock amplifier can drive virtually any speaker optimally under any conditions. Power output is 800W into 4 ohms, (400W into 8 ohms). It sports Adaptive Bias Control technology, which establishes the ideal bias current for each of the amp's 16 output transistors by measuring, sampling, and digitizing the supplied current. The Utopik switch-mode power supply boasts precision-regulated power rails generating 2kW maximum power output while retaining speed and efficiency. Klimax Solo 800 also features superior heat management, driving the most difficult loads without compromising linearity or resorting to an internal fan.The cool-running design is achieved by mounting the amplifier and power-supply circuitry directly to the critically efficient, large-surface-area heatsinks. Further, Utopik minimizes switching noise and improves efficiency using a technique called "soft-switching"—a resonant-tank circuit that ensures that voltage across the switch falls to zero before the switch is thrown.

Price: $45,000/pr. linn.co.uk

Zesto Audio Andros Spirit Phonostage

The first component in Zesto's new Spirit line, the Andros Spirit phonostage features an elegant full-size, 16-gauge-steel enclosure for better grounding and isolation. Available in two versions, mm only or mm/mc—the former easily upgradeable to the latter. It sports 100% analog tube circuitry without any solid-state devices in the signal path. Its quartet of 12AX7s provides sufficient gain with minimal noise. There's a safety switch to discharge the high voltage for added safety when changing tubes and a robust, built-in, ESP toroidal power supply for better dynamic range and lower noise. Three of the most popular loading positions are provided (100, 250, and 500) to dial in the ideal cartridge match. The moving-coil cartridge loading can be adjusted on the fly without clicks or pops. All switches and knobs are easily accessible, with nothing hidden inside to adjust. The circuits and tubes are burned in for 50 hours at the factory.

Price: $2997 (mm); $3997 (mm/mc). zestoaudio.com

Alta Audio Aphrodite Loudspeaker

Aphrodite is a 54" tall, four-way, floorstanding speaker that includes a custom four-driver complement with titanium formers, hybrid neodymium/ferrite magnet structures, magnesium baskets, and free-airflow structures for maximally linear response on all drivers. The midrange and mid/bass drivers use low-distortion high-speed carbon-fiber/Rohacell/carbon-fiber composite sandwich cones, while the ribbon tweeter sports a powerful magnet structure with an amorphous core transformer for speed combined with accuracy and excellent dispersion. The speaker uses a true dipole/D'Appolito driver layout in an open-back design, with the crossover created specifically for the Aphrodite. In addition, Aphrodite includes the updated XTL II hybrid transmission line, a ported-enclosure design that greatly increases power handling, lowers distortion, and extends bass frequencies. Available in Alta's super-high-gloss black-onyx finish with other colors available upon special order. Sensitivity, 90dB; weight 137 lbs.,

Price: $50,000/pr. altaspeakers.com

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Is Atmos for Audiophiles?

No—But It Could Be

Andrew Quint

If you've spent much time visiting online audiophile sites lately, you could get the impression that immersive audio is the future of the hobby. Exactly what's meant by "immersive audio" isn't always clear. In 2018, the AES sponsored a textbook called *Immersive Sound* with expert-authored, math-heavy chapters on topics that included binaural audio, surround sound, wave-field synthesis, and object-based audio. It's the last of these that, in enthusiast circles, has become synonymous with immersive audio and, although there are other formats that are object-based—Auro-3D, MPEG-H, DTS-X, Sony 360 Reality, and others—it's Dolby Atmos that's been dominant when it comes to yet another attempt to represent the spatial aspects of recorded sound.

"Yet another attempt?" Well, this is an area of audio engineering with a rich history and, strangely, a large part of Dolby Atmos's small but ardent audiophile constituency doesn't seem to have much experience with or even much interest in earlier approaches to spatial sound. Commercially, that history dates back more than half a century to Quadraphonic—four channels, in contrast to the two of stereo (a misrepresentation, as the term "stereo" was originally intended to refer to more than one.) Next, by way of technology originally developed for movie theaters, came "surround sound" that evolved into the physical media that many multichannel music aficionados view as the high-water mark for spatially ambitious music software—the short-lived DVD-Audio format, SACD, and music-only Blu-ray. I have thousands of these albums, on both disc and drive. Especially with classical music, the best can capture the experience of hearing a performance in a specific venue. With "synthetic" studio recordings of jazz, rock, and other popular genres, the results are mixed, but many are highly enjoyable, not just for their enveloping spaciousness but also for their capacity to clarify an artist's musical intent.

Like stereo, traditional multichannel is loudspeaker based. A dimensional soundfield is created by craftily routing sounds to a specific channel in a 5.1 or 7.1 configuration. With object-based formats, some sounds, saved as mono files, are only distributed at the time of playback based on how a listener's audio system is configured. There is also a standard multichannel "bed" that includes height channels, on which the objects, guided by their accompanying metadata, are superimposed. It's obviously a wonderful tool for filmmakers and video game programmers when jets are flying overhead, bullets are whizzing past, or there's some other "special effect" to portray sonically. Some recording engineers have leveraged the possibilities of Atmos (and other object-based formats) for musical content with excellent results, and some examples are noted below. Unfortunately, this isn't what the typical Atmos-loving audiophile is listening to right now.

The Editor-in-Chief of this magazine has an audio aphorism I've heard him offer up more than once, applicable to new and/or controversial technologies that people want to weigh in on: "If you haven't heard it, you don't have an opinion." In fact, too often, audiophiles are happy to take sides on matters of sound quality without the benefit of listening to the equipment or recording in question.

I wanted to be certain that my opinion of Atmos, whatever it was, wasn't predetermined, based on brief auditions at an audio show or on a friend's system or, worse, on word-of-mouth. I want-

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ed it to be based on spending a meaningful amount of time with the technology in a familiar environment. This meant obtaining some new gear, but I wasn't, of course, starting from scratch. I had a good 5.1 surround-sound system and a lot of positive experience with multichannel music. The loudspeaker array was all-Magico—M2s for the main fronts, an S3 Mk2 for the center channel, S1 Mk2s for the surrounds, and an S-Sub subwoofer. To add Dolby Atmos compatibility, I purchased the Magico A1s I'd just reviewed and made those my height speakers. They were mounted on the side walls, even with the main listening position, their bottom surface six feet above the floor. My AV receiver for multichannel listening had been an Anthem D2v, old enough that it lacked modern surround protocols like Atmos; I replaced it with an Anthem AVM70. For power amps, I was all set—Tidal Audio Ferios monoblocks for front right and left and Pass Labs for the rest: three XA60.8s for center and surrounds and an Aleph 0s for the height speakers.

Source material came to the system in three ways. Discs—CDs, SACDs, and Blu-rays—were played on a Sony X1100ES universal player connected with HDMI to the Anthem. Stereo Tidal files were run through a BACCH-SP adio with a proprietary crosstalk cancellation (XTC) filter that could be turned on and off, the digital output then sent on to the AVM70 though a coaxial cable. Finally, an Apple TV box brought in Atmos material that was sent directly to the Anthem via HDMI.

At first a listener may be seduced by the spatiality of the Atmos material, but when he or she concentrates on color, texture, detail, dynamic nuance, and other "reality triggers," the Atmos version usually comes up short.

In reality, there's very little music-only Dolby Atmos material available on silver disc or download. Most of what you can hear now—thousands of songs—is available from streaming services, including Tidal, Qobuz, Amazon Prime, and, especially, Apple TV+. The variety of music available is gradually increasing—nothing like the tens-of-millions of tracks available from the major streaming services, but increasing—and the price for a subscription is quite reasonable. However, there's a substantial problem that's not mentioned much by Atmos partisans. There are two varieties of Dolby Atmos, a lossless one called Dolby True HD which is what you can get on a disc or download, and a lossy one, Dolby Digital Plus that's streamed for reasons of economy. And Dolby Digital Plus isn't just a little lossy; it's *profoundly* so—the data rate is roughly half that of a Red Book stereo CD.

How do those lossy files sound, apart from their surround aspects? When compared to the same material in stereo from Tidal or Qobuz, where what's offered is at least CD-quality and often better, not great. I did many comparisons and, though at first a listener may be seduced by the spatiality of the Atmos material, when he or she concentrates on color, texture, detail, dynamic nuance, and other "reality triggers," the Atmos version usually comes up short.

A few examples. On the Apple TV+ Atmos version of Sheryl Crow's "Every Day Is a Winding Road," the bass is a series of dull thuds as opposed to the file available from Tidal, where it's full, rounded, and tuneful. It's far easier with the higher-resolution stereo file to tell when Crow is double-tracked with herself. Tenor Daniel Behle has received accolades for his live portrayal of the title role in Wagner's *Lohengrin*. When his performance (on the Prospero label) of the Act 3 showstopper "In fernem Land" is heard via Atmos streaming, the singer impresses, but compared to the same performance heard streamed from Tidal, his performance via Atmos feels restrained, with significantly less texture, dynamic shading, and "ring." Nemanja Radulovic's playing of the Beethoven violin concerto on a new Warner Classics release goes from pleasant with Apple TV+ Atmos to vital with Tidal. The powers that be at Apple Music have made it pretty clear that they have no interest in streaming higher-resolution content, maintaining, probably correctly, that the vast majority of their subscribers don't care.

There's a second issue for me, and it's a big one. The quality of the spatiality provided by Atmos of the Dolby Digital Plus variety is often inferior to that with traditional 5.1 surround sound. Because the spatial treatment of pop, rock, jazz, and other non-classical genres is such a mixed bag, I developed this opinion mostly with classical. Atmos is "immersive," all right, in the sense of filling the room, but there's a generic quality to the spaciousness that becomes tiresome after a while. There's little of the differentiation of recording spaces that good speaker-based multichannel can provide and less detailed information about the disposition of the musicians on an imagined stage before you. The kind of specific information about concert halls, performers, and recording techniques that I'm used to with traditional multichannel just isn't forthcoming.

Dolby Atmos, the TrueHD variety, can succeed phenomenally. I have in my collection about three-dozen Blu-ray discs with Atmos production, most of which are from the Norwegian 2L label. Those releases hold *both* a high-resolution 5.1 PCM version of the program, and a True HD Atmos version. Two especially wonderful ones deserve mention. On *Himmelborgen,* Morten Lindberg has recorded a top Oslo choir with organ accompaniment in the church at which they're based. The 5.1 24/192 DTS is very impressive, but the Atmos version is truly jaw-dropping with a wider and taller soundstage that gives the sturdy hymns an even greater majesty. As in life, one can identify individual voices within the much larger ensemble. On Ole Bull's *Largo posato e Rondò capriccioso* (the opening selection on 2L's *Stages of Life*), the solo violin has better focus and more specific localization. These—and other Lindberg recordings—are among the best spatial recordings in any form and demonstrate beyond any doubt that Dolby Atmos is capable of serving as a state-of-the-art encoding modality.

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Besides the 2L releases, where the repertoire is far from mainstream and the spatial aesthetic is as immersive as it gets (session photos often show the musicians in a circular arrangement, surrounding the conductor and microphone array), chances to compare an Atmos Dolby Digital Plus version to a traditional multichannel mix are few and far between. But examples do exist, and the contrasts can be instructive. A number of Elton John's best-known albums were reissued by Universal as SACDs with a multichannel option, including the 1972 classic, *Honky Château*. On the Atmos mix of "Rocket Man," David Henschel's majestically baroque synthesizer solo accompanying the second half of the second verse ("And all this science I don't understand…") is barely audible and Elton's bounding piano part is indistinct. The "oohs" and "ohs" behind the listening position are more prominent and, arguably, taller with Atmos, but the soundfield is not as dramatically vast. The sense of a solitary man alone with his thoughts in the cold vacuum of outer space is lessened with the Atmos stream.

Another path to improved spatialization is to maximize the potential of two-channel stereo. The most fruitful approach has been crosstalk cancellation (XTC), and there are several products that can reduce acoustic crosstalk, including Theoretica Applied Physics's BACCH-SP, which I've been using for well over a year now. On a new Deutsche Grammophon release of mandolin concertos performed by Avi Avital and Il Giardino Armonico, the hall ambiance on the Apple TV+ Dolby Atmos version sounds suspiciously cavernous for an ensemble of 20 players plus soloist. The intimate scale of the music-making was far better represented by a Tidal-sourced stereo file, especially with XTC engaged to reveal details regarding the location of the players relative to one another—an intimation that the musicians were interacting and not performing for a distant, unseen audience up in the cheap seats.

Why do *I* value the spatial aspects of canned music? One reason, I'll admit, is a kind of nostalgia. Recordings with good imaging and soundstaging capabilities can take me back to a much earlier time in my musical life when I played trombone in orchestras and keyboards in a cover band. There they are, reanimated from the past: trumpets to my right, bassoons and clarinets in a row directly in front of me. Further in front, cellos are stage left and violins stage right—maybe a nine-foot concert grand between them for a concerto. Alternatively, I'm transported back to a sweaty basement with the drummer a few feet away, moving air with his kickdrum that the bass player and I, with left hand octaves on an electric piano, strive to support. An "immersive" presentation can certainly evoke the participatory sense of making music with others. More passively, it can also approximate the perspective of an audience member in a small club, a large concert hall, or an outdoor venue—the proverbial best seat in the house.

But I believe what we want to be immersed in isn't a luxuriant wash of sound-for-sound's-sake, but the musical meaning communicated by that sound. At least I *hope* we're not simply looking for an intoxicating aural sensation that's generalized from genre to genre, from artist to artist, and from venue to venue. That gets old very quickly.

With its capacity to dynamically locate specific images in a dimensional aural bed, Atmos can become awesome. But as currently experienced via the participating streaming services, it's no better than episodically interesting, diverting… *pleasant*. If that's what floats your boat as an audiophile, by all means spring for the necessary processor and extra speakers and prepare for a battle over aesthetic considerations in your listening space. For me, "pleasant" doesn't cut it. In my personal quest to extract the spatial essence of musical sound, I'll continue to pursue speaker-based multichannel as well as efforts to optimize playback of the millions of stereo recordings that are our collective inheritance. Dolby Atmos, as it's mostly being offered now, is not a step forward for critical listeners looking for musical connection that rivals the real thing. tas

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The 2024 Florida International Audio Exposition

A Family Affair

ALAN TAFFEL & ANDREW QUINT

SHHH. DON'T TELL ANYONE, but Florida has quietly become the go-to audio show for couples. There were couples everywhere, music lovers all. And if you made the natural assumption about which member was the die-hard audiophile, you could well have been proven wrong. These were very pleasant surprises, to say the least. Further, it was nice to see chivalry on constant display, as men offered the prime seat to their significant others—at least temporarily. As if that weren't enough, there were also plenty of college-age attendees.

None of this happened by accident. Show organizer Bart Andeer had seen firsthand the varied demographics of shows like Munich and Warsaw and mourned the lack of such a show in the U.S. He couldn't see any reason why there *shouldn't* be such a show here, other than the fact that audio events are perennially marketed primarily to male audiophiles. Naturally, then, that's who attends.

Bart wanted to change it up, so he turned to Jasmine D'Addario, a local marketing specialist. With Bart's input, she created a campaign designed to appeal to—and attract—both men and women. Bart also sought the advice of Geshelli Labs' Rachel Keene, a college student who also works in the industry. She became a big part of an outreach to a younger demographic.

It worked. Aside from the plainly visible evidence wherever you turned, Bart's sales numbers bore out that 30% of attendees were spouses, and another 10% were college students. That's incredible for a U.S. show.

Aside from its refreshingly unusual demographics, Florida was noteworthy for its plentiful and sometimes oddball product introductions and a venue that is literally falling apart. (The show is moving to a new venue next year.) A cold drizzle was offset by the warm camaraderie between exhibitors and avid attendees.

As has become our wont, we have divided the show into Inspirational (that is, relatively affordable) and Aspirational (you *hope* to someday afford them) systems and new products. Andy took the former category, and Alan covered the latter. How did we decide which products and systems were Aspirational? As a Supreme Court Justice once said of pornography, "You know it when you see it." More specifically, Inspirational products tended to be in the $20k and up range, while Aspirational systems were easily $100k or more. You will also find that Andy lists more Inspirational products than Alan found in the Aspirational category. This reflects the balance at the show. Conversely, there were far more Aspirational than Inspirational systems, and our coverage reflects that, as well. Overall, here's what we saw and heard.

ALAN TAFFEL

12 Aspirational New Products

T+A chose Florida for the first North America showing of its **R2500R** "Multi-Source Receiver." It's a streaming client, disc player, tuner, DAC, and 140Wpc integrated amp. Price is $18,800 plus $920 for the optional phonostage. The amp is Class AB but with a switching power supply to save space. IMHO, this unit fills a need for a compact, all-in-one component at this size, price, and performance level.

The **United Home Audio Ultima Apollo** ($55k) tape deck is essentially a scaled-down SuperDeck, with much of that $90k model's technology and performance. Now UHA's penultimate deck, the Apollo features brand new gain stages and voltage regulators, among other enhancements to the brand's lower models. The Apollo was being shown in the same system as the equally new **mbl C41** streaming DAC ($11k).

Cable company **Wireworld** showcased what it claims are the world's first fully shielded, two-conductor power cords, the **Mini Stratus** ($90/2m) and **Mini Electra** ($240/2m). They are intended to be used for anything in a system that doesn't use a three-conductor power cord, such as network equipment, accessories, and some powered speakers. Wireworld boasts of excellent noise rejection and filtration.

Aurender unveiled a smart new "all-in-one" unit, the **AP20** music server/DAC/integrated amp ($22k). The 200Wpc unit made a good showing driving a pair of **Wilson Sabrina X**s.

Well known for constantly improving its products, **Gershman Acoustics** just gave its popular **Black Swan** model the **30th Anniversary Edition** treatment. As in past designs, the low-frequency section is completely decoupled from the tweeter/midrange unit. However, the new version ($90k) has an internal "bass trap" as well as an entirely new crossover and woofer, plus a revamped tweeter and midrange.

Metronome already makes arguably the world's best CD/SACD player, the Kalista DreamPlay X reviewed by JV in these pages. But that unit is decidedly big bucks. At a more approachable level, though still Aspirational, the company now offers the **Metronome**

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The new Aurender AP20 is a streamer/DAC/integrated amp all in one.

Metaxas doesn't just make tape decks.

The Metaxas Ethereal is, believe it or not, a headphone amplifier.

AQWO 2 ($24k), which was being shown for the first time in North America. The model is a CD/SACD player/DAC with a novel feature: It has two output stages, tubed and solid-state, and the user can switch between them at will.

Finnish speaker maker **Amphion** introduced to North America its latest flagship, the $24k **Krypton 3X**. The three-way model utilizes an unusually low crossover point of 1.2kHz between the midrange and the tweeter, as well as a tuned port on the side. There is a waveguide on the tweeter that assists driver integration and time alignment. Driven by **Esoteric** electronics, the speaker sounded light and fast.

Long out of the spotlight, our old friend **Vienna Acoustics** is back in the U.S., now under the Playback Distribution umbrella. Florida served as the debut of the **Liszt Reference** ($22k), the company's current top floorstander. (Higher models are planned.) The speaker utilizes a flat mid/hi coincident driver plus three 7" woofers. As in past VA models, the mid/hi unit is mounted in a swivel head for room optimization. All told, the Liszt Reference created a very smooth, refined sound.

AGD introduced not one but two GaN (Gallium Nitride) monoblock amplifiers. The **Solo** ($23,500/pr.) produces 550Wpc, while the **Duet** ($11,500) makes do with "only" 300Wpc. GaN is said to have the advantage of being a faster conductor than silicon. At Florida, the new amps were paired with an AGD preamp ($12,500) and the **Ocean Way Audio Eureka** speakers ($12k), delivering a sound that had remarkable ease and clarity.

You've read about the **Metaxas** Tourbillon tape deck in TAS, but Florida was actually the first public showcase. In addition, the company made it emphatically clear that it's no one-trick pony by also unveiling its **Solitaire** 150Wpc integrated amp ($41k) and the wild-looking **Siren** speakers ($128k), sculpted from a block of solid aluminum. Together, they created an inviting, easygoing sound. Yet, the most striking new model from the Dutch company was its **Ethereal** headphone amp ($32k), which takes the shape of a full-sized female form. (The nipples are volume controls.) Fully Class A, the Ethereal can output 1000 volts. Since that generates a lot of warmth, the entire "body" acts as a heat sink. As an option, a Swiss clock can be fitted into the head. No, I'm not making this up.

All the way from Norway, **Electrocompaniet** debuted the first model to receive a revamp that will eventually be shared by its entire lineup. The **AW300M** is a monoblock priced at $29k/pair. Though a completely new design, the company says it preserves the round yet dramatic "Nordic sound" characteristic of the brand. The amp produced very seductive sonics when driving the new **Triangle 40th Anniversary Magellan Duetto** ($7k).

Rounding out my dozen is a statement speaker from **Gauder**

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The new Electrocompaniet AW 300 M monoblock amp.

FLAX offered a choice of Stenheims, including the award-winning Five SE.

Akoustik, the **DARC 250 Mk II** ($250k; see Andre Jennings' review in this issue). Though expensive, the new Gauder is not unwieldy in size. It comprises a diamond tweeter *and* midrange, as well as a 12th-order (that's a 60dB/octave slope) crossover with time-alignment circuitry. The cabinet consists of aluminum ribs, with damping gaskets in between, all under extreme tension.

Top 10 Aspirational Systems

The Stenheim/Viva/VPI Room. Stenheim was showing the Five. SE ($73.5k), upon which JV has lavished much praise. That was enough to pack in the crowds. The speakers were being driven by the 22-watt **Viva Solista Mk II** ($29,500) tube amp, which would have been a massive mismatch if not for the Stenheim's 94dB sensitivity. The rest of the system was a **VPI Avenger Direct** turntable with a **DS Audio Grand Master Extreme** cartridge, a **T+A Reference DAC**, a **Wolf Audio** music server, **Synergistic** cables, and the fetching new **HRS SXR** rack. Sound was clean, open, and incredibly revealing with superb bass. Only a slight touch of brightness marred the otherwise exemplary sonics.

The Clarysis/VAC/Aurender Room. Clarysis continues to make waves with its full-range ribbon speakers. The modest- and large-sized versions were both on display in Florida but, as in the past, I preferred the smaller of the two. Driven by a **VAC 170iQ** integrated amp, fed by an **Aurender** server, the speakers exhibited no artifice, no distortion, and no incoherence. Nothing to distract from the music. They are about as close to no speaker as you can get. Further, and surprisingly for a planar, there was more-than-ample bass power. Local dealer Suncoast Audio reports that sales of the Clarysis speakers have been "through the roof." It's easy to hear why.

The mbl/United Home Audio Room. As usual, mbl was in the top tier of rooms, with a system anchored by the venerable **101 E Mk IIs**, paired with massive mbl amps, and fronted by the new **C41** streamer and the equally fresh **UHA Ultima Apollo** tape deck. The setup had some of the best bass of the show, with boundless low-end energy that was never out of control. While the sound was good when streaming from the C41, it hit another gear of verisimilitude and dynamic punch when the Apollo deck was playing. That, and mbl's first use of the **Wireworld Platinum**-series cables, may explain why this was one of mbl's best show outings.

The TAD Room. In a bid to remind attendees of both its history and its upper-end products, TAD brought to Florida its estimable **Ultimate Reference One TX** ($160k) and **Compact Reference One TX** ($87,500) speakers, originally designed by Andrew Jones. For a certain kind of audiophile—one interested in rarefied refinement rather than in-your-face detail—these speakers are just the ticket. The big Ultimate Reference model, backed by an all-TAD system,

TAD brought its big guns to Florida.

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ALAN TAFFEL

The 2024 Florida International Audio Exposition

The large Clarysis system was tri-amped with an active, analog crossover (rear).

Acora's VRC-1 was stunning and, per AT, had the best sound of the show.

ALAN TAFFEL'S BEST OF SHOW

Best Sound (Cost-no-object)

The Acora/VAC room. I realize that endowing Acora with this award is becoming repetitive, but frankly no other system in Florida combined the scale, musical revelations, and visceral impact of this one. The $220k **VRC-1** speakers, here rendered in a stunning swirled brown granite, sounded the best I've ever heard them, thanks no doubt in part to the improved **VAC 450iQ** monoblock amps ($60k each), which VAC says are a harbinger of things to come. The system breathed new life into every track. Further, in a testament to the colorless nature of the system, every track sounded completely different. This is what high-end audio aspires to.

Best Sound (Cost-a-consideration)

The Elac room. The best and most expensive speaker in this room was the **Concentro S503**, which costs a mere $7k yet boasts an AMT tweeter mounted with a 5" aluminum mid-range in a coincident fashion. The lows are produced by a 7" woofer, and all are ensconced in a petite stand-mounted speaker. Given its imaging, resolution, and bass extension, as driven by equally affordable Elac electronics, you'd never know you weren't in the presence of a far more expensive system.

Best Demo

The Synergistic Research Powercell 8 Line Conditioner. The new **Powercell 8** ($4500) was put to the test in before-and-after listening sessions, during which it made a startling difference in terms of image solidity, bass tightness, dimensionality, and openness.

Most Important Trend

The rise of easy-to-listen-to speakers. The etched, micro-detailed speakers that used to dominate audio shows seem to have fallen out of favor. This is a generally positive trend, though many speakers in Florida went too far in the easy-listening direction.

Most Over-Played Song

Stealing the crown from Dire Straits, London Grammar's "Hey Now" could be heard echoing through every hall on every floor.

Best Ultra-Nerdy Audiophile Joke

At dinner one night, after several courses, Andy Quint remarked of the last one: "All the food has been very good, but this entrée has the internal silver wiring."

was, of course, the best. On the mellow side, to be sure, but balanced top to bottom. The coincident driver delivered incredibly realistic imaging. Bass was another strong suit. Andy called the speaker "majestic," and he wasn't wrong.

High End by Oz. This room, one of the large ones on the main floor, featured the **Lansche 5.2** speakers ($57k) with plasma tweeters. Like the Stenheims, they were mated to the **Viva Solista Mk II** 22-watt integrated tube amp. The combination was very open and noticeably extended on top. Further, the system had a purity I rarely heard elsewhere.

The MSB/Estelon Room. A crisis led to a triumph when electronics manufacturer MSB's planned speakers suffered shipping damage. The company turned to one of its longtime customers, who came valiantly to the rescue by shipping his prize **Estelon X Diamond Mk II** speakers ($90k) from California. In what proved to be a winning combination, the resulting system was relaxed yet revealing, natural in its timbres, and highly musical.

The Big Clarysis Room. While the little Clarysis speakers stole my heart, the biggies ($146k including white glove delivery and setup) boggled my mind. Ceiling-height (in a large ballroom, mind you), the pair were powered by six huge **VAC** monoblocks in a tri-amp configuration wherein the signal was split by an all-new, all-analog active crossover made by **CSPort** ($22,500). The no-holds-barred system yielded a gigantic soundstage and effortless transparency from top to audacious bottom. At one point, the bass on London Grammar's "Hey Now" proved so overwhelming, it turned the ballroom into one giant resonant node.

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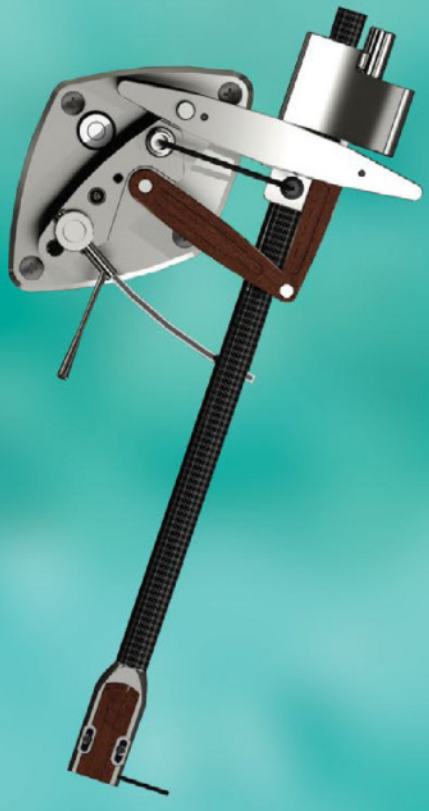

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SHOW REPORT

ANDREW QUINT

The 2024 Florida International Audio Expo

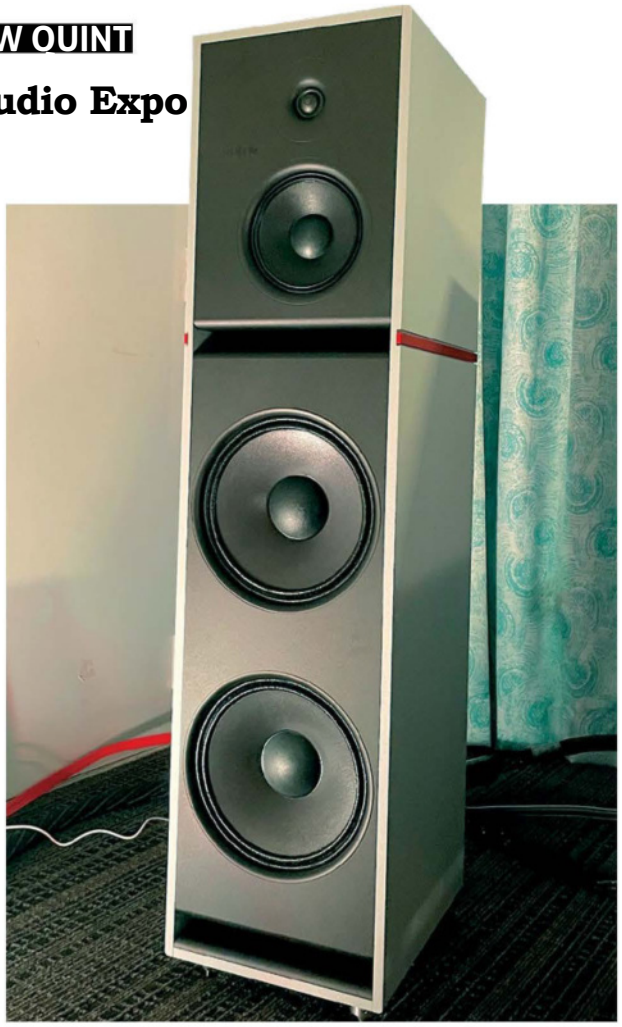
Pro-Ject Audio Systems Tube Box DS3 B phonostage.

The E-Kit LIVE™ from SubDrum® Industries LLC of Melbourne, Florida.

The Haniwa Room. Japan's Haniwa is most often thought of as a horn-speaker company, but it has, in fact, built an entire ecosystem around its 1-ohm, all-frequency drivers. On display in Florida was the new **HSP03** bundle, which includes speakers, a GaN amp suitable for driving such a difficult load, and two subwoofers. All in, the bundle runs $24k. In Florida, it was complemented by **The Player** turntable with **HTAM 03** arm and **C0** cartridge ($12k for all three). The C0 has an impedance of just 0.08 ohms, and its moving coil has but a single turn! The sound, as expected from good horns, was lively, dynamic, fresh, and coherent. Integration with the subs was absolutely seamless.

The Acora/VAC Room. See "Best of Show" on page 30.

The Gauder Akoustik/Soulution Room. One of the most expensive systems at Florida was a showcase for **Soulution** electronics, including the luscious **727** preamp ($90k) as well as Gauder's **DARC 250 Mk II** ($250k), both making their North American debut. Together, they made a beautiful tone with very convincing bass.



Stenheim's Alumine Five SE.

ANDREW QUINT

15 Inspirational New Products

It could be a measure of the rising stature of the Tampa show that there were a decent number of product debuts at a price level relevant to most aficionados. Sometimes, one exhibitor had more than one new product to demonstrate, as in the beloved analog specialist **Pro-Ject Audio Systems**' room. In addition to a new turntable with integral phonostage for $599 (a factory-mounted **Sumiko Ranier** moving-magnet cartridge is included), of particular interest was the **Tube Box DS3 B phonostage** ($1200), a compact dual-mono design with both balanced and single-ended inputs and a robust functionality allowing for the ready adjustment of resistance, capacitance, and gain to suit whatever cartridge you're using at the moment.

I blinked a couple of times when I read that **Børressen** had a brand-new bookshelf/standmount speaker, the **X1**, priced at $5500, $6600 with stands. (Remember, this Danish manufacturer also sells the 01 Silver Supreme, a highly coveted loudspeaker with roughly the same dimensions as the X1—for ten times the price.) The X1's cabinet is made of a heavily braced wood composite; it employs a lower-mass version of Børressen's planar

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ribbon and a 4.5" bass/midrange cone. Børressen's speakers are *always* played too loudly at audio shows, which can leave one with the impression that the house sound is hard and brittle. But, at more sensible playback levels, there's no denying the X1's impressively extended top end and timbral accuracy.

Triangle had two loudspeakers from its 40th Anniversary set of products to play, the **Antal EZ 40th** floorstander ($4700) and the **Duetto 40th** stand-mount ($7000), from the **Magellan** line. The company rep, unsolicited, put on orchestral Wagner, a first in my show experience, as most classical music tends to clear out a room at North American events, and Wagner's bombast and political baggage can be even more problematic. I'm a fan, though, and the Duettos handled the most monumental excerpts from *Das Rheingold* and *Götterdämmerung* with assurance.

MC Audiotech TL-8.

ELAC, no matter who its chief designer is, consistently offers cost-effective options for critical listeners and had a couple of new loudspeakers to demonstrate. I heard both the **Concentro S503** bookshelf ($6999) that features the Jet 5 Heil tweeter and another stand-mount model, the **Vela BS 404.2** ($3500), which employs the newer Jet 6. Both speakers did quite well with Lyle Lovett's jaunty "I've Been to Memphis," with the more costly model a little less "shouty."

Focal has been undertaking a "refresh" of its entire Aria loudspeaker range—I heard the **Aria EVO X N° 4** ($5998). Engineering advances include the use of Focal's aluminum/magnesium 'M'-shaped inverted dome tweeter and revisions to both the crossovers and woofer magnet construction. The midrange driver now features a key patented Focal technology, the Tuned Mass Damper—a pair of tubular rings that are incorporated into the driver's surround. My leading orchestral reference recording, the opening movement of the Shostakovich Symphony No. 15 performed by Bernard Haitink and the Concertgebouw Orchestra, was dynamic with natural instrumental colors. The mid-movement crescendo crested gracefully.

Based in Brevard County, Florida, **Geshelli Labs**—the Swiss Family Robinson of audio manufacturers—always has a major presence at FLAX. This year, the extended family, the expansive range of gear that the company makes, and enthusiastic customers filled three rooms on the ninth floor of the Embassy Suites. Geshelli now licenses technology from the Italian company Amanero, which streamlines design and manufacturing. A new product is the **Dayzee DAC** ($1300–$2300, depending on options), which incorporates dual AK 4499EX chips. A key design goal for the product was simple, intuitive operation. You turn it on, pick an input—there are five: two TosLink, two coaxial, one AES/EBU, and one USB—and off you go. Through MoFi speakers, the sound was robust and resolving.

Sparkos Labs Inc. is a two-person operation—electrical engineer Andrew Sparks and his wife, Alisa Jones—located in Westminster, Colorado. Sparkos makes op-amps for use by other manufacturers but also sells two headphone amplifiers, the **Aries** and the new **Gemini** ($995). The Gemini has a tube front end (there's a single 6922 Electroharmonix, though tube rolling is encouraged), an Alps Blue Velvet volume control, and a feature that allows a user to adjust the amount of current that the tube is biased at, which determines the "tubeyness" of the sound. Played in a system that included a Geshelli DAC and Hi-Fi Man headphones, the sound was spacious and detailed. Check out the website; it's pretty hilarious.

Holding forth in the hallway leading to large meeting rooms was **DH Labs**, a Florida company that's been manufacturing silver wires for more than 30 years. By silver cable standards, the prices are quite reasonable. A new arrival to DH Labs' comprehensive product line is the **D-10x AES/EBU cable** ($525 per meter.) The conductors are 20-gauge five-nines silver with a PTFE Teflon dielectric and rhodium-plated terminations.

Falcon Acoustics is perhaps best known for its faithful rendering of the LS3/5A loudspeaker—the only one that meticulously adheres to the original BBC standards. Under the leadership of Jerry Bloomfield, who took over running the company 15 years ago, Falcon has developed new speaker lines, including the five-model M series. Right in the middle of the M range is the **M30** ($6795), a large, ported 3-way that sits atop a squat stand. The driver array includes Falcon's own bass and midrange drivers plus a 1" soft dome tweeter. The presentation was transparent without crossing a boundary into overly clinical. There was a top-to-bottom coherence that was very appealing; my hunch is that the M30s will wear well in the long term.

Designer Paul Paddock and International Sales Manager Mark Conti were on hand to introduce the **MC Audiotech TL-8** ($15,000, with an upcharge for veneer finishes), the smallest and least expensive loudspeaker from the Pennsylvania-based company to date. It's a floorstander with a single WBLS (wideband line source) driver, the transducer patented by Paddock nearly 40 years ago, plus an 8" woofer implemented with transmission-line loading. Driven by a pair of **Pass Labs XA60.8** monoblocks, the speakers were fearless with large-scale orchestral music and capable, as well, with more intimate material. Bass was surprisingly powerful and extended. The TL-8 goes into full-scale production in about two months.

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Wells Audio introduced several new products including the **Majestic integrated amplifier** ($6000), driving **TAD E1-tx** loudspeakers and wired with **Cardas** cable. Orchestral music (Mozart, Prokofiev) had clarity and a wonderful sense of space. A duet for a female vocalist and acoustic bass demonstrated timbral accuracy and immediacy, simultaneously at both ends of the frequency spectrum. Sure, the loudspeakers were an important element of the system's success, but I'm also sure that the Japanese speakers would have revealed any inadequacies in the reproduction chain behind them.

Playback Distribution, which represents several venerable audio brands, including TEAC and Esoteric, occupied three rooms on the tenth floor of the Embassy Suites (probably a disadvantage, especially when the elevators malfunction—an inevitable occurrence at most audio shows.) Playing was the **Vienna Acoustics Haydn Signature** ($3495) in no less than its *fifth* incarnation. With amplification courtesy of **Advance Paris**, a 30-year-old brand recently reintroduced to the United States, symphonic music had sufficient weight and a trombone solo in a Gil Evans jazz composition was exceptionally natural sounding.

The **Dyptique Audio DP 140 MK II** ($16,999) is a French planar-magnetic design, crossed over to a "quasi-ribbon" at 1600Hz. With **Advance Paris** electronics, a superb spaciousness was achieved. Reproduction of solo piano was utterly convincing, and vocals didn't have excessive sibilance. There wasn't much symphonic music on hand (and the exhibitor wasn't streaming), but he did come up with *John Williams in Vienna,* which revealed an expansive soundstage and excellent orchestral weight.

Top 5 Inspirational Systems

Dutch & Dutch 8c with u-BACCH plug-in Dutch & Dutch's 8c loudspeaker ($14,950) is the first to license a third-party plug-in, in this case the most basic version of the **BACCH crosstalk cancellation filter** ($1100). Activating BACCH extracts a spatiality that's integral to the majority of the millions of stereo recordings that have been made over the past 70 years. With or without crosstalk cancellation, the D&Ds are robust, full-range transducers that will handle practically anything you throw at them. There's no compromise here; the 8c is a candidate for the current best value in all the realm of perfectionist hi-fi.

Sparkos/Geshelli/HiFiMan

I'm neither a headphone guy nor especially devoted to tube electronics, but a "personal audio" system like the one I heard in the Sparkos suite could change those biases, if a short audition is any indication. The new **Sparkos Gemini** headphone preamp—see above—combined with a **Geselli DAC** and a set of **HiFiMan** over-ear 'phones, provided the kind of pointed dynamics and natural vocal/instrumental colors that I'm used to with loudspeakers and in life. The listening experience was completely absorbing, whether the music was a Brahms clarinet sonata or a Stravinsky ballet.

Focal/Naim

Jacksonville, Florida's House of Stereo had a well-past-listenable system up-and-running in Room. 716. Operated with the Focal/Naim app, two new products were heard, the **Focal Aria EVO X N° 4 loudspeaker** (noted above) and the **Naim Uniti Nova Power Edition**, an "all-in-one" device that serves as preamp, DAC, and power amplifier. There was excellent component synergy in play here, and, once again, first-rate sonics were achieved at a total system cost of under $20,000.

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ELAC
A system composed solely of ELAC products, save for analog **Cardas** cabling, was assembled in Room 518. **ELAC Concentro S503** bookshelf speakers ($6999) plus an **Alchemy DDP-2** DAC/preamp, two monoblock amplifiers, the **Discovery Music Server,** speaker stands, and surge protector played a reference symphonic work with suitable orchestral weight, clarity, good imaging, and air.

SVS/Evotiva
Decades ago, **SVS** was a subwoofer specialist. Since then, new ownership has diversified its speaker range. At FLAX, SVS introduced a loudspeaker, the **Ultra Evolution Pinnacle** ($5000)—a 3-way, 5-driver design—driven by an **Emotiva PT2** preamp/DAC/tuner ($700) and an **Emotiva Basx A2** amp ($500). As amply demonstrated with music, affordable electronics can do the trick. Add streaming, and you have a stereo all of us could live with.

ANDREW QUINT'S BEST OF SHOW

Best Sound (price-no-object)
Stenheim Alumine Five SE ($73,500) • **Red Wolf 2** server (from $9400) • **T+A SD 3100 Reference** Streaming DAC ($36,390) • **Viva Solista** integrated amplifier ($29,500) • **Synergistic Research Galileo Discovery** speaker cable (from $17,995) • **Synergistic Research Galileo PowerCell SX** ($27,995) • **Synergistic Research Galileo SX MkII Ground Block** (from $7995)
Usually, "best" products and systems at audio shows are found at or near ground level, in the ballrooms and large meeting rooms: That's where the grandest, most costly gear is being demonstrated. At FLAX 2024, I was certainly impressed by several of these systems—the kind that only very few have the space and financial means to own—but, ultimately, my heart was won by a system played in a modest-sized 7th floor hotel room. The star of the show was the Stenheim loudspeaker, understated in its musical presentation yet so authoritative in its representation of musical scale. Not cheap, for sure, yet a consideration not solely for sheiks, Russian oligarchs, and ophthalmologists.

Best Sound (considering price)
Dutch & Dutch 8c with u-BACCH plug-in ($14,950) • Acora speaker stands ($6250)
No question about this one. The Acora pillars are really unnecessary; a pair of SolidSteel stands for about a grand would have done the trick. You know I'm not counting the ethernet cables needed to connect the D&D to a network for streaming. You *do* already have a laptop or tablet, right? This is world-class sound for under $20k.

Most Significant New Product
MC Audiotech loudspeakers seem to get better and better as time goes on and as they get smaller. The **TL-8** ($15,000) plays like a big speaker but with plenty of subtlety. (See above.)

Most Significant Trend
Apps developed for specific audio products
Aurender has one, Dutch & Dutch has one, Anthem has one, Focal and Naim share one—and there are plenty of others. Will physical remotes become a thing of the past?

Most Futuristic Audio Component to Anticipate
Jerry Bloomfield, the owner and managing director of the British loudspeaker manufacturer Falcon Acoustics, extracted me from Falcon's busy demo room, led me next door, and had me don VR goggles. What materialized was a futuristic tower, designed in large part with AI techniques to create a kind of *über*-speaker. The 5' 3" tall, 3-way, five-driver device is housed in a composite enclosure with monocoque properties and a CNC-machined aluminum front baffle. The Oneiros weighs in at 284.5 pounds and will cost, Bloomfield believes, close to half a million dollars. There are evident connections to the British luxury-car esthetic, including the availability of 15,000 automotive paint finishes and gorgeous wood accents. I'm not permitted to reproduce the photo from the Oneiros' preliminary spec sheet but can report that the speaker occupies the aesthetic world of the KEF Blade, the Bowers & Wilkins Nautilus, and pretty much any Estelon—and may ultimately eclipse those worthy products as an iconic statement of industrial design.

Most...*Interesting* Product at FLAX 2024
SubDrum Industries, LLC produces loudspeakers with the drivers mounted inside decommissioned drums. The company was started by the affable Larry Morini (a drummer, of course) from Melbourne, Florida, and his product line certainly evoked plenty of conversation at FLAX. I'm not sure audiophiles should be his intended audience, but I took a SubDrum bumper sticker anyway.

Best Ego Stroke
My room at the Embassy Suites hotel was on one of the exhibition floors. I can't complain as rooms were provided at no charge to journalists covering the show and there was an 11 p.m. curfew for tweaking one's system. I was located across the hall from Room 711, which featured the updated **Electrocompaniet** amplifier. The good folks of House of Stereo from Jacksonville, Florida, didn't realize that 712 was occupied and persistently kept positioning their floor-to-ceiling sign in front of my door. "A Legend Reborn?" Aw, shucks. Just doin' my job. tas

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Gold Note PH-1000 Phonostage

Flexibility *and* Performance

Jacob Heilbrunn

One of the more intriguing developments in vinyl playback is the passel of features that are now often included in phonostages. Adjustments for gain, loading, and equalization curves can be accessed at the flick of a switch. Simplicity is out. Complexity is in.

The Gold Note PH-1000 phonostage may be the premier example of this trend. It hails from Italy, can be had with a separate optional PSU-1250 power supply and coupled with a special Tube-1012 buffer stage for a total of three pieces of gear. To my mind, the sleek two-piece set from Gold Note is more than ample; if you're looking for an even lusher sound—and, quite frankly, there is no reason you should, as the solid-state set is already plenty lush—you can add the third stage. The phonostage itself offers no fewer than 40 equalization curves as well as a variety of gain and loading options—all easily accessible via a snazzy lighted front panel that is a delight to operate or from the supplied remote control. The vinyl connoisseur can literally fiddle to his or her heart's content with a variety of playback options for favorite Decca or Columbia LPs, not to mention records that date from what might be called the BS era (Before Stereo), when equalization really is a good idea given that the RIAA curve had not yet been introduced. Since this is the high end, fierce disputes (what else?) center around the issue of Decca versus London pressings (the former were sold in England with a black label and the latter in America with a red one), with some claiming there is a chasm between them and others scoffing outright at the notion that any such difference exists, deeming it an analog version of fake news. If you're keen on entering this thicket of controversy, then the Gold Note will allow you to explore it to your heart's content.

For me, the true pleasure conveyed by the Gold Note was not exploring such arcana but much more palpable. I was most impressed by its LP playback in several important sonic areas.

The first and most audible feature of the Gold Note was the stability of its soundstage. Readers of Jonathan Valin's recent review of the MBL X-Treme MKII loudspeakers may recall his emphasis on its ability to produce an unwavering soundstage even as you walk around the room. When I recently visited MBL in Berlin and heard the nifty 101 E Mk. II loudspeakers, I was forcibly reminded of what Jonathan had noted in reviewing its big brother. As I wiggled back and forth on the sofa, the soundstage never collapsed or wavered. It was rock-solid, akin to what you would experience at a concert. The Gold Note could hardly be expected to produce what a 360-degree omnidirectional loudspeaker does, but I was struck by the solidity of its soundstage when I coupled it to the Avantgarde Trio G3 loudspeakers. Not only was the soundstage deep and expansive, but individual instruments were firmly anchored in it, ranging from massed orchestral forces to jazz ensembles. On the 1963 Argo album *Boss Bone* featuring the trombonist Al Grey, for example, it was a real pleasure to listen to this fairly early stereo recording because the other performers were spaced out so evenly across the soundstage. The Gold Note phonostage had an easy calm to it that brought a nice clarity to the proceedings. Nothing was smudged, blurred, or inchoate. Instead, Al Grey's trombone and plunger combination, a sassy sound if there ever was one, came through loud and clear on number like "Salty Mama" and "Grey Being Blue."

The sense of an iron fist in a velvet glove also came through on an old classic, the album *Trio* featuring Dolly Parton, Linda Ronstadt, and Emmylou Harris. Once again, the immaculate soundstaging endowed the playback with a relaxed sound that can often be elusive on this album. There have been more than a few occasions on which I found this album overly bright. Not so with the Gold Note. There was the soundstage solidity. But it was accompanied by remarkable detail retrieval coupled with a felicitous treble, which I suspect is a function of the proper loading of the TechDas TDC01 reference cartridge coupled to a Graham Elite tonearm on the TechDas Air Force Zero turntable. These attributes came particularly to the fore on songs such as "To Know Him Is To Love Him," where I have never heard the tremolo guitar played by Ry Cooder sound more vivid and relaxed.

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Another distinguishing feature of the Gold Note is its superlatively low noise floor. The Gold Note truly delivers the best attributes of solid-state gear in this regard. I consistently heard an enunciation of the initial transient note that was seldom less than stellar. Consider the Living Stereo recording of Dvorak's 9th Symphony with Fritz Reiner and the Chicago Symphony. The clarion call of the French horns at the outset of the symphony was lucidly rendered; the separation between the two initial notes as emphatic as it gets.

The lack of grain also meant that vocals shadings were minutely rendered. I was able to follow Elizabeth Schwarzkopf's album *Songs I Love* without an accompanying booklet containing their texts, while Geoffrey Parsons' fastidious piano accompaniment was clearly audible in the rear of the hall. The low noise floor imparted an extra sense of tension and drama to songs such as Goethe's "Gretchen at the Spinning the Wheel," whose emotional depths Schwarzkopf plumbed with exceptional virtuosity. The Gold Note was able to track Schwarzkopf's emphasis of particular syllables as well as the tremolo that she at times added to them. This was probably a more robust, even romantic, interpretation than many modern singers might offer, but it was elegantly conveyed by the Gold Note. Once again, in the upper regions, there was no sense of the shrillness that moving-coil cartridge sometimes can produce.

Nor did the Gold Note

have any difficulty reproducing large ensembles. I was impressed by two albums in this regard. The first was the famous LP *SuperBass* featuring Ray Brown and John Clayton. No matter how many basses were playing, the sound was tight and organized. Dynamics were off the charts, which is to say that the Gold Note never thinned out the sound or encountered any difficulty in keeping the festivities under control. On the tune "Swing Jig," the interaction between basses, flutes, and drums was darned close to the real thing. Then there was a very different album—Karl Bohm conducting the Berlin Philharmonic on a Deutsche Grammophon of Mozart's "Haffner" Symphony. What impressed me on this album was the fine rendition of the violin sections, whether they were playing pianissimo or forte.

And what about the acid test? I refer of course to an LP by the *a cappella* group the Persuasions called *We Came to Play* that the late A.J. Conti of Basis Audio referred me to lo those many years ago at his factory in New Hampshire. As part of his listening tests of equipment, he regularly played the song "Gypsy Woman." The Gold Note passed with flying colors; the bass was rich and stentorian, while the backing tenors were smooth and translucent.

On cut after cut, it went a long way toward transcending mere electronic reproduction to provide a lifelike sensation. Indeed, the Gold Note showed just how much enjoyment equipment at less than nosebleed price levels can provide. No, it did not surpass the performance of lofty gear. But it made me sit up with a jolt, offering performance that wasn't simply pleasing but also scintillating. **tas**

Audio Tools

WallySkater and WallyTractor Universal, Hagerman FryCorder2 and FryBaby3, Riverstone Audio Record-Level Turntable Stylus Tracking Force Gauge/Scale

Paul Seydor

"They're not accessories, they're tools": thus said J. R. Boisclair, principal owner of WAM Engineering, politely but firmly, when I asked him if I might include the WallySkater and WallyTractor analog set-up devices in a piece I was writing about accessories. I believe his distinction far from factitious. My *Meriam-Webster* defines accessory as "an object or device that is not essential in itself but adds to the beauty, convenience, or effectiveness of something else." This definition surely applies to the Wally, Hagerman, and Riverstone Audio devices under consideration here, but they obscure an important difference. What we commonly think of as audiophile accessories are things that play an active (by active, I don't mean electronically active only) role in the reproduction of sound, whether they're tips, spikes, pods, stands, pads, mats, weights, clamps, *ad infinitum*, and they are typically in use when music is being played back. Tools are nothing of the sort; they never become part of an audio *reproducing* chain and cannot in and of themselves give you lower noise and distortion, better imaging, or greater transparency. An alignment protractor can't stabilize a tonearm any more than its intrinsic design permits; a stylus-force gauge can help you set tracking weight accurately, but it can't make a pickup hold to the grooves any better than its design allows. Tools, instead, exist to (1) fix things that are broken, (2) assemble things that come unassembled, and (3) facilitate or otherwise help optimize the setup of things that require at least minimal adjustment.

WallySkater and WallyTractor

WAM Engineering was founded in the early nineties by Walenty Malewicz, a gifted mechanical engineer with a passionate love for recorded music, particularly vinyl. In 1994, he introduced his first product, the WallyTractor, a device that allowed for precise horizontal alignment of the stylus in the groove and correct stylus overhang. As Malewicz was a gentleman who seemed far happier in the lab or listening to music, the business end of his company suffered, unable to keep up with the demand for its products. A beloved man and mentor, he passed away in 2018. Not long after, J. R. Boisclair bought the company and together with Malewicz's son Andrzej relaunched Wally's company as WAM Engineering LLC. Boisclair has since invented six more devices that address key aspects of phono pickup and tonearm setup. Now the effective face of WAM and its principal product developer, he also instituted a program of services including microscopic analysis of stylus and cantilever, in-home system setup, electroacoustic room/speaker tuning, and custom-made shims for achieving correct stylus rake-angle and azimuth.

On a recommendation from Michael Fremer, I acquired the WallyTractor, a considerably improved, more sophisticated and versatile protractor than the Malewicz original, and the WallySkater, a new device that checks tonearm bias and friction and assists in the setting of correct antiskating. These are the only Wally tools I've used, though on the basis of their effectiveness, I plan to investigate several more. In the remarks that follow I shall eschew physical descriptions of these devices and how they work on the principle that a thousand words is nowhere near worth a picture, to say nothing of the several detailed instructional videos on the WAM website.

The WallySkater costs $260 in its standard version, $310 in the Pro version. The greater control the Pro's hanging mechanism exerts over the plumb bob and arm threads, to say nothing of its convenience, is easily worth the extra $50 (if you already have the standard, the Pro hanger

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is available for $60). The Tractor costs $395. If that seems a bit pricey, bear in mind it includes an etched spindle ruler and jig for measuring tonearm length; an articulated lighted magnifying glass (not strictly necessary, but trust me, once you start zeroing in on overhang, offset, and cantilever alignment, you'll be glad it's included); and the most precise protractor disc I've ever seen, with arcs etched into the mirrored surface to cover different arm lengths and catering to the two most popular alignment formulae and protocols; and personalized support (Boisclair makes himself available for anyone who needs assistance with the tools or remedies for some of the problems they might uncover in specific setups).

Boisclair recommends beginning with the Skater, because it allows you to check your tonearm for friction, freedom of movement, and any biases that might interfere with aligning your cantilever. His experience suggests that physical bias owing to arm wiring, careless routing of wires in the arm, perhaps misaligned, loose, or faulty bearings is more prevalent than you may think; these can cause lateral displacements of the arm, which misalign the cantilever one direction or another during the subsequent critical cantilever-alignment process, thus rendering correct orientation of the stylus in the groove "a mechanical impossibility." If your measurements indicate such a condition exists, Boisclair says there are fixes and/or workarounds to address it; this is where the personal service comes in, the manual recommending contacting him at WAM. (If I were a dealer specializing in record-playing equipment, I'd have a WallySkater on hand if only to ensure the arms I sell are free from physical bias and excessive friction.)

Another issue is static horizontal friction, AKA stiction, which results in a condition whereby the stylus in effect pulls the arm across the record, which can cause asymmetrical loading of the delicate cartridge-motor's damper. It also means, again, that it's a mechanical impossibility for the stylus to stay in proper geometric relationship to the groove because as soon as an arm so afflicted starts to move across the record, it invariably pulls the cantilever out of alignment.

Once you've ascertained your arm has none of these issues, you're ready to turn to the WallyTractor, which does what all other alignment protractors do only with far greater precision and exactitude: ensure proper stylus overhang with respect to arm length and proper offset with respect to optimizing the closest possible tangency a pivoted tonearm can manage to the record groove as it traverses the LP (radial arms are also accommodated). This protractor is rather daunting the first time you remove it from its cloth sleeve. LP-sized with a mirror finish, it's divided into two halves, one labeled "Older Record Collections," the other "Newer Record Collections." Measurements Boisclair's made of more than a thousand LPs revealed that those from 1990 forward "show a significant increase in innermost groove radius versus pre-1990 records." The choice allows you to optimize your setup to get the best out of your collection. ("If you aren't sure," the manual says, "stick with Older Record Collection arcs!")

Each half of the protractor contains 29 arcs for arms ranging in pivot-to-stylus lengths from 222 to 356 millimeters—in pairs. Why pairs? One for Baerwald alignment, the other for Löfgren. A center line through the spindle has crosshairs for the null points and for aligning the cantilever. First, you determine the pivot-to-stylus distance of your arm. If the arm's manual doesn't provide this information, the included ruler-jig lets you measure it yourself. Then you lock in overhang, offset, and cantilever alignment—the most time-consuming tasks. Next comes antiskating, for which you reemploy the WallySkater. I've tried all sorts of methods for adjusting antiskating, including test records, grooveless LPs, and the built-in gauges or dials on arms (which values are in my experience almost always too high); regardless of what I tried, in the end I've always wound up setting it by ear, using my most difficult-to-track LPs (but *not* test records, which introduce problems of their own). I once discussed this whole matter at length with the late A. J. Conti of Basis Audio, who was more fanatical about this sort of thing than anyone I've ever known (at least before Boisclair). A. J. recommended the grooveless record but readily conceded it was a compromise that almost always requires subsequent tweaking by ear. With the six pickups I've installed since using the Skater, I've never had to tweak a setting once I've locked it in.

As with all these operations, Wally's online videos are invaluable, taking you through the processes step by step. How much effort and time are required? Well, I won't lie—you must be willing to work slowly, patiently, and methodically at first. But the learning curve is fairly easily scaled and mastered; and bear in mind that assuming you don't change arms, once the WallySkater has established yours is free from any serious bias or friction issues, if you change pickups, you can proceed directly to the antiskating, which is pretty quick. The WallyTractor adjustments are inevitably more time consuming because more minute, therefore painstaking, but after the first few setups, the time it took me dropped by half and lower, the most recent one dispatched in about 15 minutes.

Let me say straight off that with all the LPs I regularly use to check tracking, these two Wally tools let every pickup/arm combination I tried, which was several, perform better than with any other setup tools I've ever used, including the Dennesen Geometric SoundTractor (alas, long discontinued but heretofore my go-to). In sonic terms, the improvements include but are not limited to cleaner tracking, lower noise and perceived distortion, greater clarity and resolution, a more confident overall presentation with greater precision and solidity of imaging, more securely focused instruments and performers within the soundstage, and an impression of greater control and stability.

In a recent issue I reported on one of Ortofon's latest vintage SPU variations, the Synergy G, outfitted with an elliptical stylus for better tracking. Based on a design introduced over 60 years ago, tracking was satisfactory to excellent much of the time, very good some of the time, and merely okay or not so good with really difficult-to-track records. Among the things it

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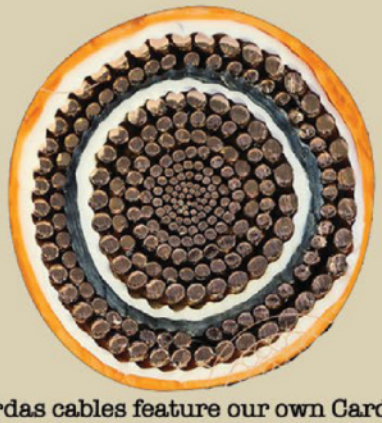

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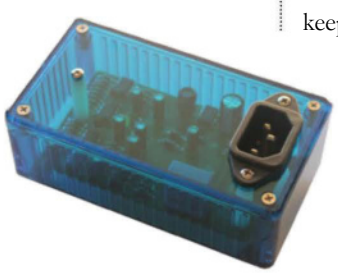
could not track without audible distress is the police whistle that puts an abrupt halt to the rumble depicted in the opening Prologue on the 2021 *West Side Story* soundtrack—until I set it up using the Wally tools, particularly the Skater. Afterward, the tracking was uniformly excellent, rarely less than very good. No, it still didn't track that whistle and some other problematic LPs *quite* as cleanly as my Shure V15 V/Jico (reviewed in Issue 334)—even many modern pickups struggle with several of them—but the Synergy now comes very close, no longer breaking up, no longer causing me to tense up as the moment approaches. And speaking of the formidable Shure V15 V/Jico, which tracks superbly even in a relatively careless setup, when I got alignment and especially antiskating dialed in using the Wally tools, its tracking went from superb to superlative, the presentation more confident, more together, more controlled, more exciting yet paradoxically more effortless.

But at $655 for the pair, are the Wallies worth the expense and effort in the grand scheme of things? That I can't answer for you or anyone else. One of the glories or ironies—depending on your point of view—of vinyl is that it's a very forgiving medium. As anyone my age surely knows, millions have hugely enjoyed vinyl before or without the tools we now have to enable greater exactitude in setup or the components that allow for a considerably more faithful reproduction of what is in the grooves. It all comes down to priorities, I guess. I am not the sort to get obsessive over battening down every last hatch of pickup/arm/table setup, I do not tweak endlessly after I've done the best setup I can, and I don't say the sonic improvements I've described here are life changing. But if my investment in pickup, arm, and table were only, say, a couple grand or less—and mine is far more than that—then the improvements I hear easily justify the Wally tools' eminently reasonable pricing, let alone the modest effort required to master the use of them.

Hagerman Audio Labs Frybay3 and FryCorder2

Hagerman Audio Labs, headquartered in Honolulu, Hawaii, and founded in 1994, is a small direct-sales company focused on the design and manufacture of value-driven audiophile-grade electronics, handcrafted in the USA, with a 10-year warranty, 30-day trial period, and free shipping within the USA. That's a paraphrase from the home page of the company's website, written, I assume, by its founder Jim Hagerman. Most of the products have to do with phono preamplification and equalization, including a very reasonably priced phono preamp, called the Archiver, "designed to replicate any known equalization curve (36 in total), from 78rpm shellacs up to the modern era" (Google "Fremer Hagerman Archiver" for Michael Fremer's review), and another, called the Bugle, billed as "arguably the best phonostage under $500," the current price as of this writing being $249, including both mm and mc capability. (I love that "arguably": How many under $500, let alone $249 phonostages are there for people to argue about?)



The two products under review here Hagerman calls accessories, though by my definition they are plainly tools. The FryBaby3 Compact Burn-In Generator ($289 regular, now $259) is designed specifically to speed up the burn-in of interconnects and speaker cables, but it can also be used to burn in linestages, phonostages, and amplifiers. Through a combination of wideband noise and variable-frequency amplitude modulation, the signal it generates exercises "both low- and high-frequency characteristics of conductors and insulators." A three-position switch varies the output level among moving coil, moving magnet, and line, while two modes of burn-in, voltage and current, each requiring a different connective configuration from the other, are recommended for maximum effectiveness. The mm and mc modes include a reverse RIAA filter for proper phono equalization.

All this is clearly laid out in the manual, which suggests 24 hours for voltage burn-in, 48 hours for current, doubling those numbers for silver conductors. RCA jacks come standard, while XLR terminations require an adaptor ($49) that also allows for burn-in of headphones. Interconnects of either termination can be burned in together by daisy-chaining them. (In an email, Hagerman advised keeping the length under 30 meters!) The FryBaby3 also burns in speaker cables, one side at a time; BNC jacks and a set of binding posts are standard (if needed, additional sets costs $39 each). For burn-in of electronics, only voltage mode is used.

The FryCorder2 Power Cord Burn-In Generator ($189) is exclusively for AC line cords. Only one can be done at a time, recommended burn-in time four to five days.

Most of my regular readers know that I am about as far from a wire junkie as it's possible to get. Over two decades ago, Neil Gader and I did interconnect and speaker-cable surveys, as a consequence of which I vowed I'd never subject myself to such an experience again—nothing to do with Neil, one of my closest friends and always a joy to work with, rather the objects of the surveys themselves. One reason is that there seems to be no consistent philosophy, paradigm, model, or comprehensive theory as to the hows and whys wire makes a difference, at least none upon which any two or more manufacturers can agree. Instead, there's a veritable Tower of Babel of competing ideas and "explanations," most of which I find tentative, incomplete, sometimes bewildering, occasionally nonsensical. Saying which, let me add that I'm perfectly willing to admit it's my shortcomings in experience, education, intellect, and brain power—slow, I grant, but redeemed, I've always felt, by a certain doggedness in the pursuit of understanding—that prevent me grasping what many of them are talking about. Then there's my subjective experience, to wit, that most of the claims made for improvements said to be wrought by changes in interconnects, cables, line cords, and conditioners are to

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my ears usually exaggerated, sometimes little or even no improvement at all, merely a noticeable difference, occasionally worse than before the swap. In order to forestall a barrage of angry emails to our overworked editor, please note that I do not say the differences are unobservable or insignificant, particularly to those for whom they are significant, merely to my mind overstated.

All of which begs the question, what the hell am I doing reviewing a pair of devices like these Hagermans? Fair enough. Well, first, despite the diatribe of the previous paragraph, I actually do use quality wire throughout my two main systems and have done for the past 40 years. The brands of interconnects, speaker cables, and AC power products include—the listing is alphabetical, so read no ranking in the order—Audience, AudioQuest, Benchmark, Cardas, Crystal, Hovland (along with the later mentions of Sumiko and Peterson, this now-defunct brand dates me, I know, but my Hovland interconnects are still among the very best I've ever used for very long single-ended runs), Kimber, Monster, Peterson (remember them?), PS Audio, Siltech, Sumiko (from the days when David Fletcher was still there), and Wireworld. Second, from time to time I do investigate wire products, either owing to what some reviewer I find reliable has to say about this or that one or because of a trusted audiophile friend's recommendation I have a listen to something borrowed or newly purchased.

More recently, an audio-journalist acquaintance who had left writing to join the industry asked me if I'd like to try some of his company's newest products, which had been getting lots of good press these last few years. Before I knew it, several interconnects, line cords, and a pair of power conditioners landed at my front door. There was no way I could reasonably begin to evaluate any of this unless I could cook them in fast, for which the only device I know for this is the Cable Cooker, which I don't own. It was then that my good friend Dan Meinwald of EAR Imports told me about Hagerman Labs. A phone call followed, and less than a week later both FryBaby and FryCorder were deposited at my door.

They worked as claimed, reducing what might likely have been a several weeks' break-in to a few days. For the purposes of this review, I'm limiting myself to my experience with AC line cords. Among the products sent by the wire company in question—it shall go unnamed, as I do not want disputes about brands to obscure the points I want to make about burn-in—were two identical samples, each two-meters in length, of one of its upper-end, read more expensive, line cords. I opened the first sample, connected it to the FryCorder2, and let it cook for five days. I then plugged it into the line conditioner (by the same company) and played music for another week or so. One day I cued up Impex's *Sing and Dance with Frank Sinatra* remastering and listened for about a minute or so. Next, I substituted the unburned-in cord, which until then I had not even unpacked, and played the same passage at the exact same volume (my preamp has a numerical read-out of the level) for the exact same period of time, about a minute, though I certainly did not need that long.

The difference left me slack-jawed—this from someone who has often been deeply skeptical, if not positively cynical about the whole break-in, burn-in business. With the burned-in cord Sinatra's voice was warm and rich, with as much dynamic range as the technology of the time allowed, full of life and vitality, with marvelous body and dimensionality. With the unburned-in cord the sound was pinched, thin, and edgy. So, the first thing I did is what I usually do when confronted with something like this—called in my wife Danielle. Now Danielle's no audiophile, but she listens well and astutely, and her responses are untainted by typical audiophile predilections, prejudices, and pomposities. I started with the burned-in cord at exactly the same level and played the recording for the same length of time, around a minute. Then I told her I was going to play it again, but without letting her see what I was doing, adding that she might not hear any difference at all. Not 20 seconds elapsed before she said, "This is not subtle," and proceeded to describe the differences she observed in more or less the same or closely analogous terms as I did. "What did you do?" When I showed her, she asked, something most of have at one point or another exclaimed in our audiophile odysseys, "But how can that make any difference—it's just electricity!"

Reassured I wasn't hearing things, I performed another experiment. I ordered a pair of 2-meter 3-pronged IEC cords from Amazon basics (they're sold two to a package) and put them through the same steps I did the audiophile cords. One was broken in with the FryCorder2 for five days, the other left unopened. I then substituted the burned-in Amazon for the audiophile one. I did this at the beginning of the day, after the system had been left on all night, but without listening to music, as I didn't want the sound of the audiophile cable in my head immediately before listening to the burned-in Amazon. Same piece of music, same duration, same levels.

Here's what I observed. First, with the Amazon pair there were clearly observable differences between the burned-in and the unburned-in cords, except they were not so pronounced as with the audiophile brand. Second, the burned-in Amazon reproduced the Sinatra LP the way I am used to hearing it: lively, warm, rich, rounded, dimensional, etc. etc. etc. The unburned-in cord sounded dull and lifeless. Next, I substituted the burned-in audiophile cord for the burned-in Amazon. This produced a bit of surprise. The audiophile cord was observably superior, but not by nearly so much as I had expected, being a little livelier, more dynamic, more transparent—the usual litany of welcome characteristics. But the Amazon was by no means humiliated, the biggest difference to my ears the firmer bass line of the audiophile cord. Danielle wasn't around for this experiment, but a close friend corroborated my findings.

What conclusions can be drawn from my little experiments? Frankly, not many of a general nature that I'd be willing to place much stock in without a far greater variety of source material, more numerous comparisons, much more time spent in the listening, and a wider sample of

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Hagerman Audio Labs
Honolulu, HI
hagerman-audio-labs.myshopify.com
Prices: FryBaby3 Compact Burn-In Generator: $259; FryCorder2 Power Cord Burn-In Generator: $189

Riverstone Audio
riverstoneaudio.com
Price: Riverstone Audio Record-Level Turntable Stylus Tracking Force Gauge/Scale: $32.79 (Amazon)

cords and brands. But the one thing that is clearer to me than ever before is the importance of burn-in, so much so that henceforth I shall never trust my impressions of any wire product auditioned immediately after it's been removed from factory-sealed packaging. And I shall never again disparage the necessity of burning in wire products.

All this begs the same question as the Wally tools: Do you, if you're a "typical" audiophile, need burn-in tools? Almost certainly not if your system doesn't change much and you're not into sampling new electronics and wire products on a regular basis. And even if you are, can't you accomplish the same thing with ordinary music or a burn-in CD? Yes, you can, but it takes a lot longer, and it's probably less effective than the broad-band signal developed by Hagerman, which reduces burn-in to a few days, which in turn certainly facilitates the reviewing process. My policy reviewing electronics is *not* to use fancy aftermarket AC cords or interconnects, at least not initially. I want to hear them as the consumer who buys them will hear them, with whatever comes in the box. So, while the FryCorder2 burns in the supplied AC cord, the FryBaby3 burns in the circuits in the unit itself: win-win every which way.

Finally, the most overlooked burn-in category in audio is tonearm wiring and phonostages and transformers. So low are phono signals, whether mm or mc, that Alan M. Krafton, who manufactures the Cable Cooker, has expressed doubts whether arm wiring *ever* gets fully broken in. Thanks to products like his and Hagerman's, this no longer need be a concern (though it would be useful if Hagerman followed Krafton's example and provided an adaptor so arm pickup-leads could be easily connected to the Frybaby3).

Oh, one thing more, just to drive us all a little crazier. Designers, technicians, and some audiophiles who are deep into the wire rabbit hole, e.g., Krafton and Garth Powell of AudioQuest, now tell us it's from time to time necessary to *re*-burn-in interconnects, speaker cables, and line cords. For the life of me I can't understand how a piece of wire that is in regular use manages to become *un*burned-in, but I'm not going to lose any sleep over that one. In the meantime, Hageman's tools, like the Wallies, are staying put *chez moi*.

Riverstone Audio Record-Level Turntable Stylus Tracking Force Gauge/Scale

Do you need a vertical stylus-force gauge? If you change phono pickups only when absolutely necessary and your dealer does all the work, no. Even if you do your own setups and your tonearm has reliable built-in stylus-force measurement—more on this in a moment—then you can get along without one and probably have been for a very long time. However, if the vinyl bug really has bitten you, you doubtless have more than one pickup, perhaps several by now, maybe more than one table or a table that'll handle two (or more) arms, and before you knew it you purchased an arm that requires an aftermarket vertical tracking-force gauge because the arm itself lacks any means of measuring VTF.

There are other reasons why you might want one. If the VTF mechanism on your arm is of the spring-loaded variety, you might find it advisable to check it from time to time because the springs can go out of adjustment. Truth to tell, one of the best kept secrets in the vinyl sector of high-end audio is that the built-in VTF measurements on most arms, even very expensive and highly reviewed ones, are notoriously inaccurate. (The excellent Jelco arm on the equally excellent Luxman PD-151 turntable is off by half a gram!) That is one reason why a number of the better arm designers skirt the issue entirely by requiring end users to equip themselves with a reliable after-market gauge.

Some audio reviewers and vinyl enthusiasts also like to use small variations in tracking force to make minute adjustments to vertical tracking angle, while others seek to resolve subtle differences in the sound with incremental adjustments of downward weight within the pickup's recommended range. Those are two rabbit holes I've never elected to go down—I always set VTF at the middle to upper end of the specified range—but as a reviewer and an audiophile who began with vinyl and has remained committed to it for over half a century now, I change pickups, arms, and tables frequently, so a reliable VTF gauge is a necessity. Recently I realized a long-held dream of converting my garage to a home office; when it finally happened, in the spring of 2022, the space turned out

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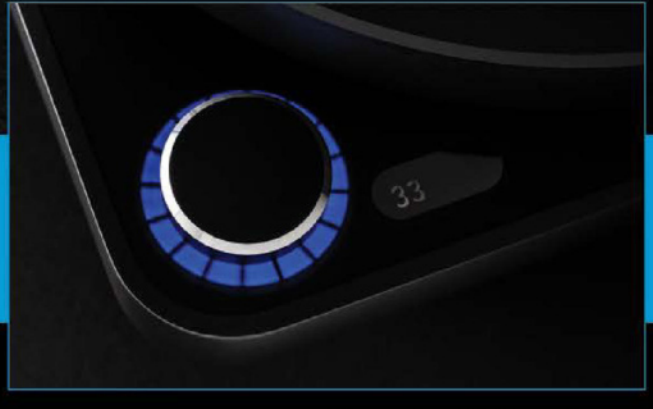

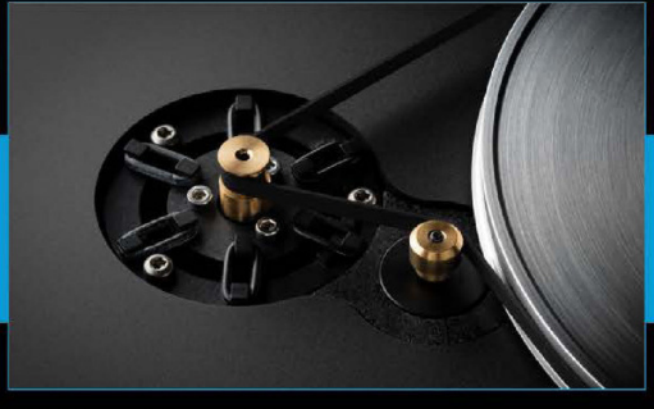

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to be commodious enough for a lovely second listening room with a second reference system. Before I knew it, I had need for a second VTF gauge, as whenever I wanted to change a pickup in one system, the gauge I already had was invariably in the other room. And much as I love the Clearaudio, I really didn't want to spend $300 on another gauge. I tried several reasonably priced digital ones from Amazon and other sources, none of which was worth a damn for accuracy, repeatability, or reliability. Then, a friend told me about the Riverstone VTF gauge. Available from Amazon for less than $33—cheaper than some manual gauges—it turned out to be exactly what I was looking for, with some great features, including one I've seen on no other such device.

Google "Riverstone stylus force gauge video" for an instructional video of how to set up, calibrate, and use it, all of which are baby simple. Unlike many digital VTF gauges, the Riverstone comes with a pair of weights, one 20 gram, one 5 gram, for calibrating the scale (use the latter for VTF calibration). This is important. The delicate sensors on most digital VTF gauges sometimes give incorrect measurements for what appears to be no reason at all (the instructional video suggests that breathing heavily on the scale or a light breeze can adversely affect measurement). I've not had this happen so far with the Riverstone, but the friend who recommended it to me says he has, albeit very infrequently. This does not indicate a defect, merely that the scale needs to be checked and recalibrated. The process takes mere seconds (literally), which is why I do it every time I commence a new setup.

The other feature of the Riverside, which is unique to it and accounts for the "Record-Level" in the nomenclature, is that you can adjust the scale so that the VTF is measured at or extremely close to the surface of the LP. Depending on where the center of gravity of the arm is and how the counterweight is configured, if the tracking force is not measured at the height of the record surface, then the value as indicated on the display might not be the *actual* downward force when the record is played. Inasmuch as the vast majority of phono pickups specify a range of tracking forces, not one specific weight, this is hardly a cause for excessive concern. But if you want to eliminate it as a source of worry, the Riverstone is unique in my experience in making it possible.

Reliable, repeatable, easy to use, adjust, and maintain for exact accuracy, well made, and an extraordinary bargain to boot, an enthusiastic recommendation is a no-brainer. Like the WallySkater and WallyTractor and the Hagerman burn-in devices, the Riverstone is now a permanent part of my audio tool kit. tas

J.Sikora Reference Turntable and KV12 Max Zirconium Series Tonearm

A Reference For Less

Jacob Heilbrunn

During World War II, the Soviet dictator Joseph Stalin established a grouping of communists called the Lublin Committee. They formed the counterpoint to the London-based Polish government in exile. Once Stalin's Red Army expelled the Nazis and occupied Poland, it installed the Lublin Poles in power, purging any democratic elements in Poland. It wasn't until 1989, with the triumph of the Solidarity movement, that the communists were toppled from power and Poland freed from the Soviet yoke. Since then, Poland has experienced a dramatic comeback. Its economy is poised to become the 20th largest in the world and its military the biggest in Europe.

A small but hardly negligible part of Poland's resurgence has been—you guessed it—the emergence of a local high-end audio industry. Today, the annual Warsaw Audio-Video Show draws visitors from around the world, including our very own Michael Fremer, who has attended it for over a decade. According to Fremer, "it's a family affair. Adam Mokrzycki, who is the show organizer, does a great job running it. It's the biggest consumer show in the world next to Munich which is even bigger and more business oriented."

One company based in Lublin that has played a significant role in pushing Poland into the vanguard of high-end audio is J.Sikora, a manufacturer of turntables and tonearms since 2007. The eponymous company is named after its founder, Janusz Sikora, an expert in metallurgy, whose son, Robert, is now taking a leading role at the company. An impassioned audiophile, Janusz eventually decided to turn his metallurgical expertise to designing and building turntables. The foundation of knowledge that he brought to the craft of constructing turntables is abundantly evidenced in their superb fit and finish.

Nowhere is this more the case than with the company's flagship, the J.Sikora Reference turntable that Jeff Fox, the proprietor of Notable Audio (which imports the Sikora line), delivered and set up at my home. This bruiser weighs in at 238 pounds—the

What constitutes an accurate sound?

platter alone is just shy of 40 pounds—and sports four separate Pabst DC motors, each whirring away in tandem with multi-grooved Delrin pulleys to produce what sounds like rock-solid speed stability. The rap on multiple motors is that they produce more noise, but the Reference was ultra-quiet in operation. Part of that silence is due to its well-engineered separate power supply.

Another part can be safely ascribed to the intricate composition of the platter, which is fabricated from cast iron, aluminum and Delrin and a top mat consisting of glass surrounding an aluminum disk. The whole shebang rests on an inverted ceramic ball bearing, an approach which more than a few turntable manufacturers favor, and the bearing rests on a platter base made up of aluminum, stainless steel, and bronze. Sikora has also further improved its proprietary tonearm by, among other things, reducing its weight and devising a new bearing composed of zirconium oxide. The result is the KV12 Max Zirconium Series tonearm.

To assess the new table, I ran it through the supremely quiet phono section of the battery-powered Dartzeel

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NHB-18NS preamplifier, which I coupled to either the new Octave Jubilee 300B-based monoblock amplifiers or the Dartzeel NHB-468 monoblock amplifiers. The cartridge that I deployed on the KV12 Max tonearm was the new and impressive Phasemation PP-5000. I plugged the Sikora power supply into a Stromtank 2500 Quantum Mk-II, which improved its performance even further.

Having previously reviewed the Sikora Standard Max table, I was curious to hear how much of a jump there would be in going to the company's premier. I was impressed by the low noise floor and speed stability of the Standard version but voiced some reservations about the table's Sikora tonearm. It sounded nimble but a bit lighter tonally, particularly in the bass, than I preferred. To my ears, the Kuzma 4Point that I also employed on the Standard was audibly superior. It quickly became clear to me that Sikora's new KV12 MAX tonearm is far superior to the standard KV12. It also was easy to discern that the reference turntable, while it didn't make the Standard sound "broken," as you often hear reviewers say, built on its strengths to offer a much more formidable sonic presentation—one that often surprised me with its accuracy and drive and sheer wallop.

What constitutes an accurate sound? One thing that my recent exposure to the direct-drive Oswalds Mill Audio K3 turntable brought home is that there can often be a subliminal blurring of transients with belt-drive tables. I'm not talking about anything as gross as notes running into one another; it's a more subtle phenomenon. But there definitely was a clarity with the K3 that sounded, to my ears, unforced and natural.

One album in which this was forcibly obvious was a spectacularly good Deutsche Grammophon recording of Mozart's chamber works performed by the Tokyo String Quartet. In the "Dissonance" quartet, the Sikora table nailed the sharp attacks of the violin and viola. This quartet opens with a 22-bar adagio that foreshadows the astringent character of the succeeding movements. At various points, the sensation of an abrupt end to a passage, a split second of silence, then the resumption of the music was utterly compelling. A slightly more prosaic but no less revealing LP was an old Cheech and Chong performance that features a number called "Sargent Stadenko," which parodies a tenacious drug officer named Sgt. Abe Snidanko in Vancouver, who was apparently renowned as the "hippie nemesis." While I realize that I may be violating the austere canons of this magazine in referencing a non-musical performance, I cannot help noting that the J.Sikora Reference did a superb job in capturing the sibilants enunciated by those two rogues, Cheech and Chong, including a whimsical line (which in my experience is not always easy for a turntable to decipher): "As Saint Dominic always said, `O Fili Mi Boni Beli Dominus Fobiscum Beni Sell It All His Dominos!'"

To carry the torture test forward, I next played one of the most treacherous brass albums, a recording on the Angel label that was released in 1980 and that features the legendary Maurice André and his former pupil Guy Touvron playing a variety of concertos for two trumpets by the baroque composer Tomaso Albinoni. This album has a tendency to fracture in the treble region, which is the lofty sphere where André and Touvron spend most of their time playing in these demanding concertos. (There is something to be said for digital recordings when it comes to brass instruments.) Indeed, I've often found it to be particularly difficult for analog recordings to capture more than one brass instrument playing in unison, and this album is no exception.

While the Sikora could not efface all the shrill characteristics of this LP, it did render it more than listenable, particularly in the adagio passages. In addition, the subtle but vital accompaniment of the harpsichord with the orchestra was rendered with enviable clarity, no small feat since it is a delicate instrument that can

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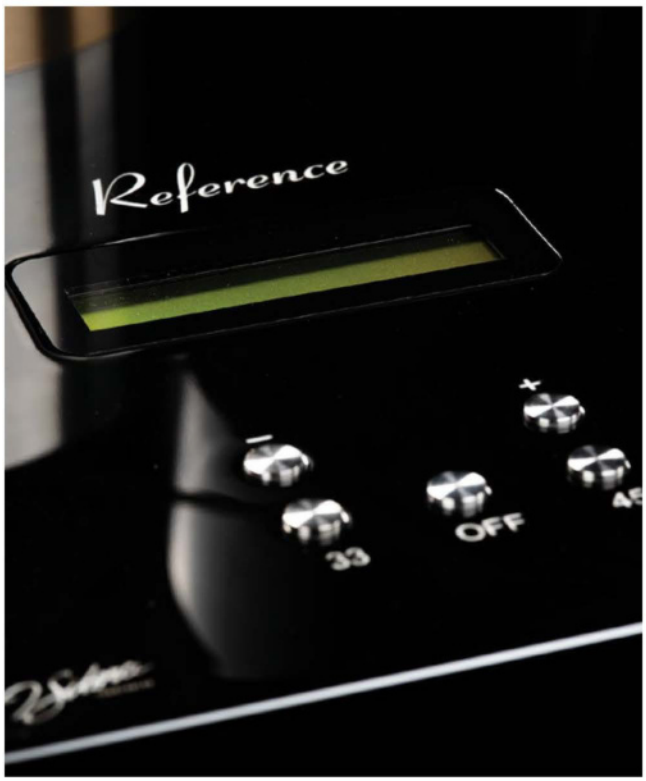

often get lost in the mix. What also came to the fore on this recording was an immediacy, a surging quality on both the strings and trumpets that endowed the music with a greater sense of realism and excitement. The J.Sikora is anything but a bland or soporific table; it delivers thrills and chills.

What more appropriate album to spin than Michael Jackson's *Thriller*? On "Beat It," I was struck by the precision with which the Reference table laid out the performers. Even more impressive was "Billie Jean." Each instrumental section was firmly in its own pocket, including the bass line which was as taut as I've heard it. The Cabasa shaker that's omnipresent on this album was also perfectly audible, never wavering. In fact, at some points, I swear you could count the beads on the shaker.

What this amounted to was an uncanny ability to disaggregate the music on an LP—in the best sense. I don't mean that it offered up a confused hash, but the very reverse. A case in point is a Tone Poet reissue of a Pacific Jazz LP by the guitarist Joe Pass called *For Django*. It almost goes without saying that Pass, who later cut numerous albums on the Pablo label, offers riveting interpretations of such classics as "Rosetta" and "Limehouse Blues" on this album. But I was also riveted by the way in which the Sikora Reference presented Colin Bailey on the drums—the sound was so clean and forceful that it almost sounded as though you were in the studio listening along. Then there was an original Riverside pressing from 1975 (double deep groove for those of you who are counting), *The Sound of Sonny: Sonny Rollins*, that I recently snagged from local record dealer, Chris Armbruster, at the Capital Audio Fest and that sounded extremely vivid and crisp. It was simplicity itself to follow the fleet interplay on these bebop numbers, which featured musicians such as Roy Haynes on drums, Paul Chambers on bass, and Sonny Clark on piano. (What an all-star cast!) The Sikora never got confused or tripped up. Instead, it laid it all out with superb self-assurance.

Ditto for a recording that I also recently acquired, one showcasing the late jazz pianist and educator Ellis Marsalis playing a variety of standards on an album called *Heart of Gold*, which was released on the Columbia label in 1991. On the Avantgarde Trios it sounded lush and inviting and atmospheric, much as you would hear in a jazz club. The Sikora nailed the piano transients, and the brushwork of the drums was once more altogether superior. Dynamics were off the charts—the piano built up to crescendos that were continuous and thunderous. It was a pleasure to hear such straightforward and unpretentious playing so clearly delineated.

On blockbuster classical recordings, the results were also quite satisfying. On the fabled Decca recording of Gustav Holst's *The Planets* suite, I heard no diminution in the prowess of the Reference. On "Mars, the Bringer of War," the bass drum shots were delivered with impressive oomph, the brass section sounded suitably threatening, and the string section held its own, particularly when it came to its sonic sheen on massed passages. Once more, the surging, propulsive characteristic of the music came through beautifully. And the tintinnabulatory effects on "Mercury, the Winged Messenger"? They were nothing short of divine.

The limitations of Lublin's finest audio creation become clear when it's contrasted with far more expensive turntables—I'm talking well into the six figures. Put bluntly, the Sikora reference doesn't have the same grandeur, the sheer sweep that an OMA K3 or a TechDAS Air Force Zero will deliver. There's something addictive about the power of those megabuck tables. But the Sikora has its own kind of lithe agility and speed, sonic purity, and dynamism that is very winning. Reference, indeed. tas

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> **Alan Taffel, The Absolute Sound, Issue 349, May/June 2024**

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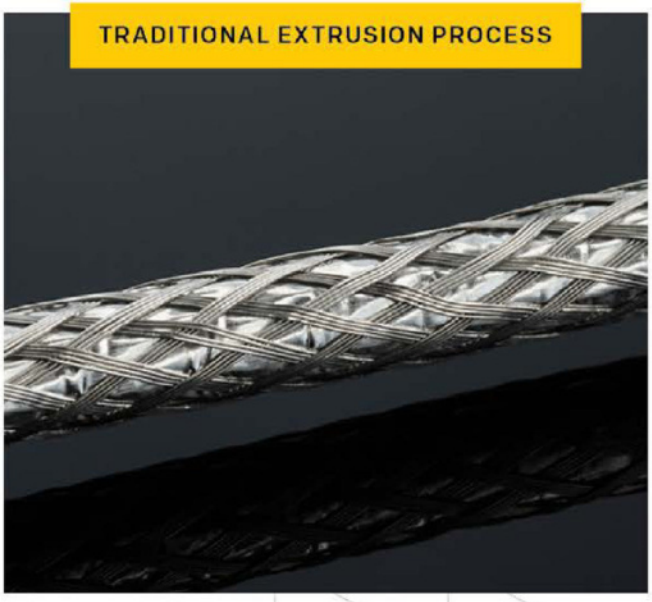

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WestminsterLab Rei Monoblock Power Amplifiers

Not Your Father's Class A Amplifier

Robert Harley

SAY THE WORDS "CLASS A MONOBLOCK AMPLIFIER" TO ANY audiophile, and he will undoubtedly conjure up an image of a massive dreadnought of an amplifier delivered by forklift that can perform double duty as a room heater.

That description applies to just about every Class A monoblock amplifier except one—the Rei from WestminsterLab. The 100-watt Rei is housed in a compact chassis that runs cool to the touch and weighs just 35 pounds. What's more, this amplifier can double its power output into 4 ohms, double it again into 2 ohms, and is stable driving a 1-ohm load. As icing on the cake, full warm-up takes only 30 minutes.

How is this possible?

We'll get into that, but first the basics. WestminsterLab is a 10-year-old company founded by a gifted young engineer named Angus Leung, who hails from Hong Kong. Angus earned his engineering chops in the UK, including a graduate degree in architecture. Taking a radically different approach to amplifier design, Angus envisioned an amplifier that could drive any speaker, is compact, runs cool, doesn't require a long warm-up time, and most importantly, embodies the sonic virtues of Class A operation. (See the sidebar for a refresher on Class A operation.) The result is the $33,900-per-pair Rei, the company's second amplifier, which has been in production since 2021.

The chassis construction is as innovative as the audio circuitry. The compact aluminum case is internally braced, looking a bit like the inside of a Magico speaker. It is composed of two separate chassis to isolate the power supply from the audio circuit. One entire side is heatsink, and the top and bottom panels are made from carbon fiber. The chassis is minimalist in appearance, with just an illuminated logo on the front panel's lower-right corner above the hidden power switch. Only balanced input is provided. A second XLR jack provides signal pass-through for connecting two of these monoblocks to create a single bridged amplifier. In that mode, the Rei can deliver a whopping 400W into 8 ohms and 800W into 4 ohms. In fact, the amplifier was originally designed as a two-chassis bridged monoblock, and that is the configuration its creator says delivers the ultimate sound quality—and not just because of the higher output power. Of course, a purchaser of one pair of Rei's can add a second pair if more power is desired.

Given the Rei's size, weight, and ability to deliver its rated power in Class A operation, it's obvious that some sort of variable-bias scheme is employed. There's absolutely no way that an amplifier with this power-supply size, relatively small number of output transistors (six per amplifier), and modest heatsink area can operate in Class A with a fixed bias. As detailed in the sidebar, bias is direct current that flows through the output transistors to partially turn them on; transistors biased into Class A operation are fully turned on all the time, which generates lots of heat. A conventional Class A amplifier dissipates as much heat at full output power as at idle. Dissipating all that heat requires lots of output transistors, big heatsinks, and a huge power supply—definitely not a description of the Rei. But variable bias continually adjusts the amount of bias current based on the input signal amplitude and other factors, greatly reducing the amount of heat generated and easing the requirements for the number of output transistors and the power supply that feeds them but still keeping the transistors in Class A operation.

Variable bias isn't a new idea; amplifier design genius Nelson Pass was awarded a patent in 1974 for a "dynamic bias" circuit introduced in the groundbreaking Threshold 800A amplifier of 1975. A variable-bias design is, indeed, the case with the Rei, but that's only part of how WestminsterLab managed to make an amplifier that so radically upends conventional thinking. WestminsterLab combines variable bias with what is claimed to be highly sophis-

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ticated thermal management, which includes lower rail voltages to reduce heat dissipation by 60%. The output stage has only six transistors, and the heatsink area is a fraction of the size of most 100W Class AB amplifiers, never mind one that operates in Class A. The company says that the power supply design plays a large role in realizing the Rei's unconventional attributes.

Still, I have a hard time wrapping my head around the idea of such a small and lightweight amplifier delivering 400W into 2 ohms. At some point, you run up against the laws of physics. That befuddlement only increased in the listening room when I heard the Rei's superb dynamic performance and ability to drive a wide range of speakers to full listening levels without strain. Clearly, the Rei features some innovative design techniques that shatter preconceptions of what an amplifier of this size can accomplish. It's worth noting that designer Angus Leung developed and tested the amplifier largely with his Apogee full-range ribbons, which present perhaps the most difficult-to-drive load of any speaker ever produced.

The circuit is ultra-minimalist, with just 12 parts between the input jack and loudspeaker terminals. WestminsterLab says the Rei has the shortest signal path ever implemented in an amplifier of this power output. The input buffer and gain stages feature matched transistor pairs, and the output transistors are not only matched to each other but also to the transistors in the other amplifier in the monoblock pair. The output transistors are matched over a range of operating levels rather than at just one level as is typical (if the transistors are even matched at all).

Hands-on experience setting up and using the Rei gives the impression of meticulous attention to detail in the build-quality. The amplifier exudes a high-precision vibe, much like a Swiss watch.

Listening

The Rei amplifiers were delivered and set up by Gary Leeds, a longtime industry veteran who imports and distributes WestminsterLab products through his company Hear This. Gary got his start in the 1970s when he was in his early 20s and working at Manhattan's legendary retailer Lyric Hi-Fi.

I was fortunate to have taken delivery of the Rei just as a parade of loudspeakers came through my listening room—Wilson Benesch Omnium, Vandersteen Model Seven XTRM, Alsyvox Caravaggio full-range ribbon (review forthcoming; see also a video preview on our YouTube channel), a friend's Audiovector R3 Arreté (stunningly great at $13k), and my long-time reference, the mighty Wilson Audio Chronosonic XVX.

Just as the Rei's size, appearance, and cool-running design buck the stereotype of a Class A amplifier, so does this amplifier's sound. In my experience, Class A amplifiers give up a bit in resolution and transparency for timbral liquidity, ease, and a relaxed sound—warm and inviting rather than incisive and detailed. That's because, in part, the distortion spectrum of Class A amplifiers is very different from that of Class AB, with the primary harmonic-distortion components being second and third harmonic with very little of the upper-order harmonics that can overlay timbres with a steely metallic hardness. Second-harmonic distortion adds a bit of plumpness and warmth to textures and is, in fact, sometimes intentionally added to recordings during mixing.

Plump and warm is not how the Rei sounds; you'd never suspect it's a Class A design. Instead, it has a neutrality that defies classification, along with a clarity and incisiveness in the upper midrange to lower treble that doesn't hew to the Class A stereotype. This amplifier is extremely resolving and transparent, with a sense of precision and finesse. It has transient speed without sounding etched. This combination imbued the music with a powerful immediacy, vibrancy, and sense of life. The track "Havana Moonlight" from Spyrogyra's *Got the Magic* is a great example; it opens with percussion instruments spread wide across the soundstage, followed by an acoustic guitar, and then the beautiful melody played on a sax. The

Specs & Pricing

Output power: 100W into 8 ohms, 200W into 4 ohms, 400W into 2 ohms
Output power in bridged mode: 400W into 8 ohms, 800W into 4 ohms (second amplifier required)
Frequency response: 5Hz–40kHz, ±0.1dB (2Hz–52kHz, –1dB
Distortion: <0.1% @ 1kHz, 100W into 8 ohms
Signal-to-noise ratio: 104dB A-weighted
Input: Balanced XLR
Line-level pass-through: Balanced XLR
Input impedance: 200k ohms
Output impedance: 0.018 ohms
Dimensions: 9.13" x 4.4" x 12.6"
Weight: 35.2 lbs. each
Price: $33,900 per pair

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percussion instruments seem to appear out of blackness and are portrayed with enough resolution to reveal the materials from which they are made. The Rei's transient speed brings them to life, and the instruments are surrounded by little puffs of air. The acoustic guitar is beautifully rendered, striking just the right balance between the transient zip of the attacks and the warmth of the instrument's body. Finally, the alto sax is smooth and liquid, fitting this track's laid-back groove.

The Rei's midrange and lower treble is a bit more forward than that of my reference CH Precision M10 amplifiers and not quite as pristine in texture as the six-times-the-price reference amplifiers. Nonetheless, the Rei's midrange clarity and transparency approach that of the Swiss amps for a fraction of the price.

One of this amplifier's strengths is resolution of fine detail, particularly in the treble. The delicate snare-drum brush work behind Samara Joy's vocal on the track "Two Hearts" from Terri Lyne Carrington's *New Standards Vol.1* was rendered with delicacy and a finely filigreed texture. Rather than producing a high-frequency swishing sound, the Rei managed to convey the subtle details that contribute to musical realism.

I was amazed that this diminutive amplifier could drive the wide range of speakers I had on hand to full listening levels with no sense of strain on peaks, no softening of the bass, and no soundstage collapse. Moreover, the Rei had a dynamic verve, speed, and impact that not only belied its size and output-power rating but was exceptional by any measure. Snare drum had tremendous "snap" with a sense of weight behind it, giving the amplifier a decidedly upbeat, lively, and rhythmically propulsive quality (try "Cousin Dupree" from Steely Dan's *Two Against Nature*, one of the best-recorded drum sounds I've heard). Driving the Alsyvox full-range ribbon speakers with their unmatched transient fidelity, the Rei resolved the full measure of a concert grand piano's intricate dynamic envelope, conveying the suddenness of the hammer hitting the strings without sounding hard or "glassy" on the initial transient. The Rei's transient precision allowed it to unravel rhythmically complex music with alacrity and visceral body-moving power. From the Talking Heads' *Speaking in Tongues* to the powerful reggae beats of Steel Pulse's *True Democracy* to the intricate multilayered African percussion and guitars of the band African Guitar Summit, the Rei consistently exhibited a sense of precision, clarity, and an upbeat propulsive quality. It wasn't just percussion and drums that revealed the Rei's superb dynamic performance. These amplifiers wonderfully portrayed music's forward flow no matter the genre. On the spectacularly great new di-

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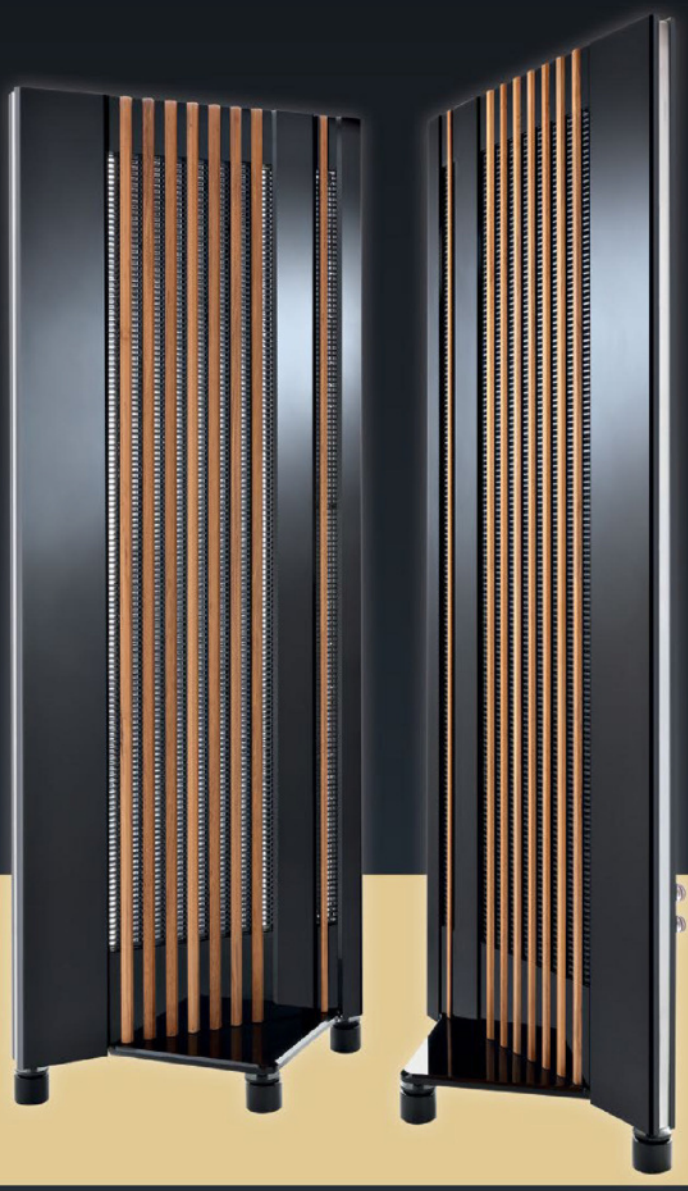

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rect-to-disc double LP *Vivaldi in London* on the Chasing the Dragon label, the Italian chamber group Interpreti Veneziani performs Vivaldi concertos. These fabulous musicians, in perhaps the most realistic recording of chamber music I've heard, bring a vitality to the performances, particularly during the andante movements, that bristles with energy. The Rei had an uncanny ability to convey to the listener the sense of occasion, of contemporaneous music-making in these remarkable performances.

Finally, the Rei's bass is excellent, combining warmth, weight, and tonal density with good pitch articulation and transient fidelity. The Rei was particularly adept at revealing textural details in the lower octaves. It was easy to hear precisely what the bass player was doing, which, combined with the bottom-end solidity and rhythmic propulsion, made for viscerally engaging listening.

Conclusion

If you're looking for the classic "Class A sound" of softish bass and warm midrange textures at the expense of transparency and resolution, the WestminsterLab Rei monoblocks probably aren't for you. But if it's neutrality, high resolution, see-through transparency, dynamic liveliness, and outstanding bass you're after, these small but mighty monoblocks should be on your shortlist. The WestminsterLab Rei amplifiers possess clarity and alacrity

Don't be fooled by the Rei's size; this amplifier easily drove every speaker I tried.

through the midband that conveys a vibrancy and immediacy that's musically compelling. And then there's the wonderfully tuneful bass that beautifully conveys rhythmic nuances as well as rich tone color.

Don't be fooled by the Rei's size; this amplifier easily drove every speaker I tried. In addition, the Rei is capable of delivering powerful dynamic contrasts and transients without sounding aggressive. But it went beyond just sounding dynamic; this amplifier conveyed a sense of musical energy that's rare from any amplifier, no matter the cost.

The REI monoblocks from WestminsterLab are ideal for the music lover who wants an exceptional-sounding amplifier without the size, weight, and heat of conventional electronics. A pair of Rei's will easily fit on a rack shelf. The short 30-minute warmup time is a bonus. In addition, the build-quality is outstanding.

In a world of "me-too" amplifiers, the WestminsterLab Rei monoblocks are something different in conception, design, build, and most importantly, the musical rewards they offer.

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Class A Amplifiers Explained

Excerpted and adapted from The Complete Guide to High-End Audio, *Sixth Edition. © 1994–2024 by Robert Harley. Reprinted with permission.*

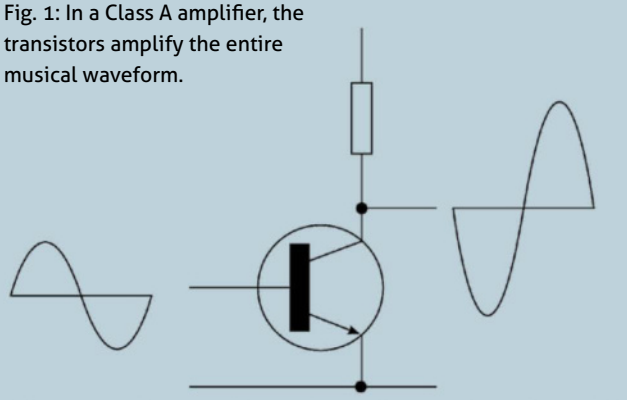
WE'VE SEEN THAT the output stage of a power amplifier can be configured either as single-ended or push-pull. To reiterate, in a single-ended amplifier the output devices (tubes or transistors) are configured so that they always amplify the entire musical waveform. The single-ended amplifier cannot operate in any other way—that's the very definition of single-ended. In a push-pull output stage, pairs of opposing devices (tubes or transistors) are arranged to work alternately—one device "pushes" current through the loudspeaker as the other device"pulls" current through the speaker. In a parallel push-pull circuit, multiple pairs of output devices are grouped together to increase the power output.

That's a description of an amplifier's output-stage *topology*—how the amplifying devices are configured. Now let's look at a separate but related factor: the amplifier's *class of operation.*

Class of operation is how a given output stage is driven. The two main classes of operation are Class A and Class B. In a Class A amplifier, the output stage (single-ended or push-pull) amplifies the entire musical waveform. In a Class B amplifier, opposing pairs of transistors (or tubes) are operated so that one transistor in the pair amplifies the positive half of the waveform as the opposing transistor amplifies the negative half of the waveform. Each transistor conducts current only half that time. Fig.1 is a simplified schematic of a single-ended topology, which we know always operates in Class A, amplifying the entire waveform. Fig.2 is push-pull output stage operated in Class B, with each transistor amplifying half the waveform.

Class of operation is easily confused with single-ended and push-pull output-stage topologies. But there's an important distinction: A single-ended amplifier always operates in Class A, but a push-pull amplifier can be operated in Class A or Class B. It might seem as if a push-pull Class A amplifier is a contradiction in terms, but it's not. In a push-pull Class A amplifier, opposing pairs of transistors are driven in such a way that current flows through both transistors throughout the entire musical waveform, and all the output devices participate in amplifying through the full cycle of the audio signal. One device pulls current through the loudspeaker while the other pushes current, but both are always turned on and conducting current. By contrast, in a Class B push-pull output stage, one transistor amplifies the signal during the positive-going portion of the signal, and the other amplifies the negative-going half of the signal. When one is working, the other is resting (and getting some needed cooling).

Fig. 1: In a Class A amplifier, the transistors amplify the entire musical waveform.



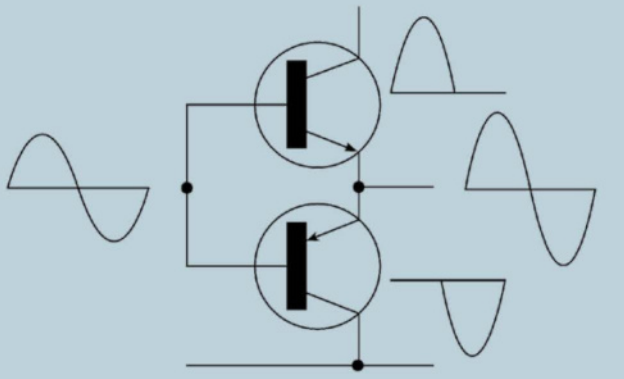
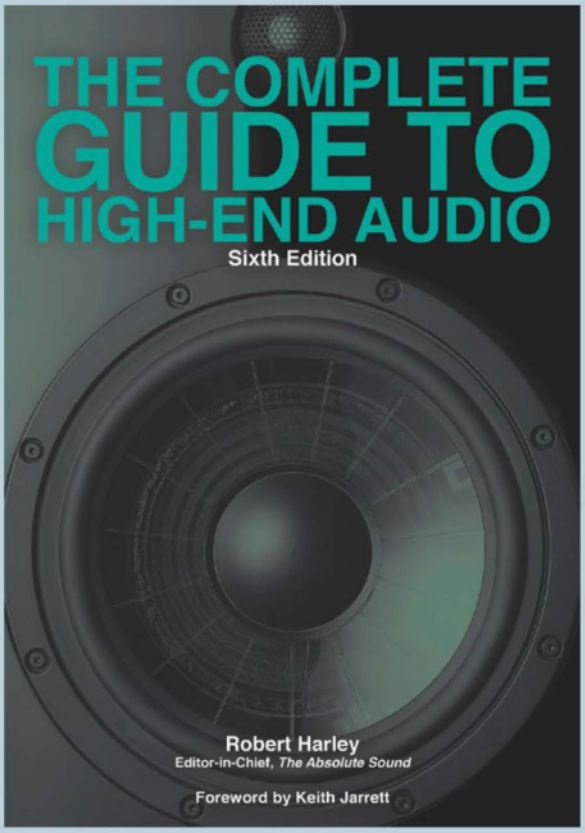


Fig. 2: In a Class B amplifier, each transistor in an opposing pair amplifies half the musical waveform.

Let's move on from these distinctions to the more practical aspects of amplifier class of operation.

Most power amplifiers are categorized as Class AB because they operate in Class A at very low power outputs, then default to Class B at higher power outputs. A 100Wpc amplifier may put out 5W of Class A power, and then switch to Class B above that level. Even the heftiest Class AB amplifiers can put out only a small portion of their rated power in Class A—a typical value is 1 or 2%. Although this may not sound like much, an amplifier driving high-sensitivity speakers at low listening levels may be delivering only a couple of watts.

How much of an amplifier's power output is Class A is determined by the amount of *bias* applied to the output transistors. Bias is a DC current that flows through the output-stage transistors at all times, even at idle (no audio signal). The higher the bias, the more current flows through the transistors when no signal is present. More bias results in more Class A output power before the amplifier defaults to Class B. Class B operation has no bias current; Class AB has moderate bias current; and Class A has very high bias current.



The designer can keep increasing the bias in a push-pull output stage until all its output-power capability is delivered in Class A. The amplifier's power-output rating would be the point at which the amplifier leaves Class A and begins operating in Class B. The factors limiting increasing the bias current are the ability of the transistors to handle the greatly increased current flow through them, of the power supply to keep up with the transistors' current demands, and of the heatsinking to dissipate the considerable heat caused by the high bias current.

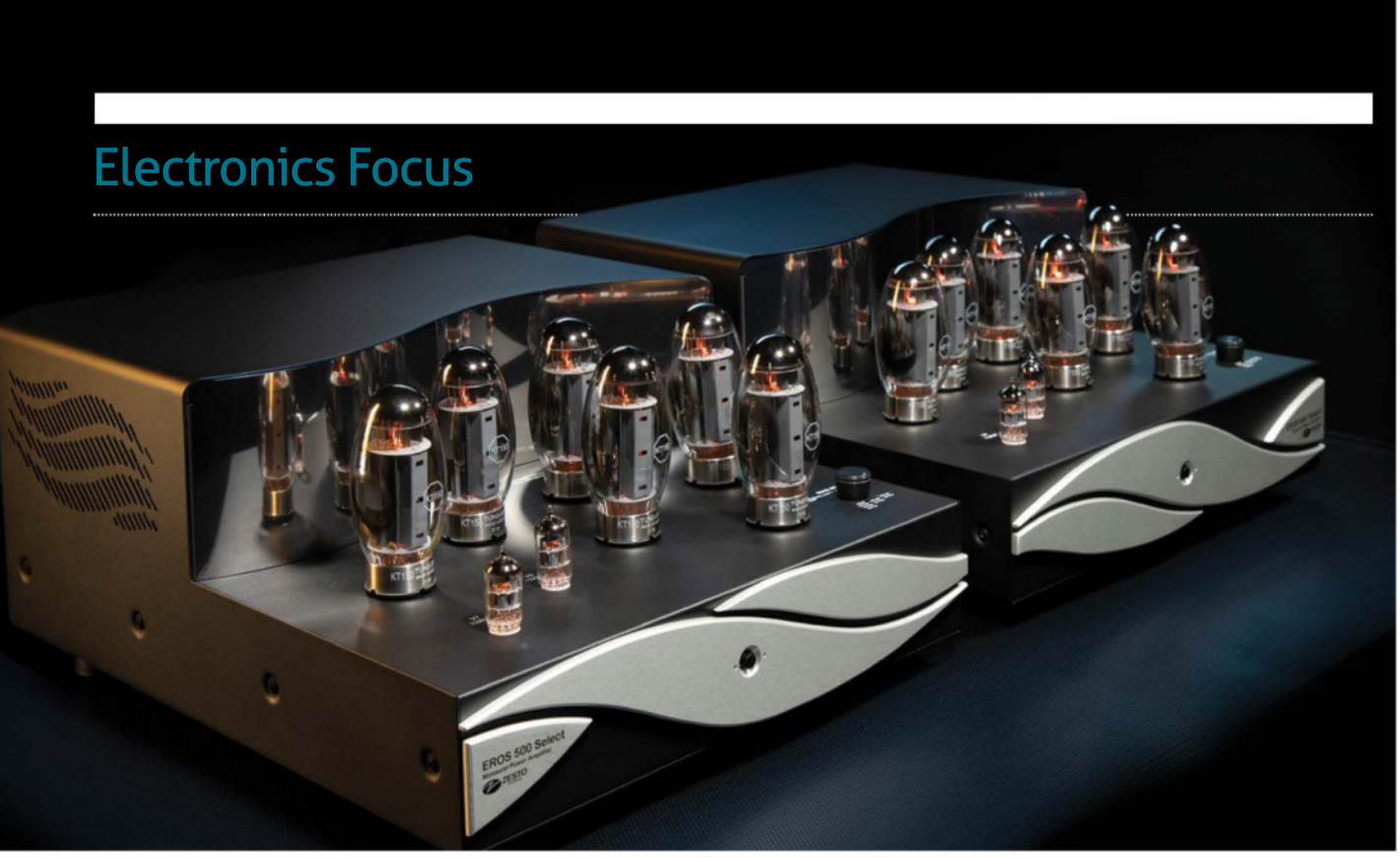
To give you an idea of the demands placed on an amplifier's output stage, power supply, and heatsinking by an output stage biased for Class A operation, let's compare two integrated amplifiers from Pass Labs that are physically identical but are biased completely differently: the INT-150, 150Wpc in Class AB; and the INT-30A, 30Wpc in Class A. The INT-150's push-pull output stage is biased so that it produces 10Wpc of Class A power before switching to Class B to deliver its full-rated output of 150Wpc. The amplifier can double its output power, to 300Wpc into 4 ohms. The INT-30A is exactly the same amplifier, employing the same power supply, an identical number and type of output transistor, and the same heatsinks as the INT-150 but is rated at just 30Wpc. The difference is that the INT-30A's 30Wpc are pure Class A watts. The amplifier, biased into Class A, delivers just one-fifth the power output of its Class AB counterpart.

As you can see, Class A operation is enormously inefficient. A Class A amplifier converts nearly all the power it draws from the wall outlet into heat and consumes just as much power at idle as when it is operating at its maximum output power. Moreover, a Class A amplifier is much more expensive to build on a "watts per dollar" basis than its Class AB counterpart.

So why would designers go to the trouble and expense of creating Class A amplifiers, and why would consumers pay such a huge premium for "Class A watts" over "Class AB watts"?

Class A has many theoretical and practical advantages. For starters, Class B and AB amplifiers suffer from *crossover distortion*, a discontinuity at the zero-crossing point where one transistor in each opposed pair "hands off" the signal to its partner. A waveform discontinuity can occur at this transition, and is lessened as bias current is introduced and increased in value. Crossover distortion can't occur in Class A operation because each transistor amplifies the entire audio waveform, not just half of it. Second, the large thermal hardware capacity required by Class A has the advantage of keeping the output transistors more thermally stable (i.e., at a more constant temperature). This makes their operating characteristics more uniform and less subject to changes resulting from the signal characteristics the transistors are amplifying. For example, if the transistors have just delivered a surge of current to the loudspeakers, they won't behave differently—and thus sound different—immediately afterward because they are momentarily hotter. Third, increasing the bias current so that an amplifier produces more Class A power not only reduces harmonic distortion but, more important, changes the nature of the harmonic distortion. As the bias is increased, the upper-order harmonics (everything above the third harmonic), which are the most sonically harmful, are most dramatically reduced in amplitude, leaving the predominant distortion component the more sonically benign second and third harmonics.

Class A power amplifiers can sound extremely good, with a sweetness and liquidity that set them apart from Class AB amps. In my experience, Class A amplifiers have many of the virtues of a tube amplifier but without the tube amp's technical limitations. This isn't to say that a Class A amplifier mimics the sonic character of tubes, but rather that Class A avoids many of the characteristic nonlinear distortions of Class AB solid-state amplifiers. tas



Zesto Audio Eros 500 Select Monaural Power Amplifier

Swept Away

Wayne Garcia

IT MUST HAVE BEEN 1978. I WAS VISITING GARLAND AUDIO in San José, California, at the time one of the Bay Area's first—and sharpest cutting-edge—high-end audio salons.

Sure, I'd poked around the Pacific Stereos and a few of the region's independent retailers and heard the best of the day from Bose, JBL, and Klipsch, seen and heard the latest from Thorens, Shure, McIntosh, and others, but discovering Garland was an entirely new, exotic, and thrillingly intoxicating experience.

In its heyday Garland was a veritable pleasure palace for well-heeled audiophiles, as well as a place friendly to far-from-flush dreamers like me—passionate young music lovers who'd gotten hooked on fine sound, with an eagerness to devour as much knowledge as we could, dreaming dreams of largely unattainable gear while scraping together enough dough to buy the pretty decent stuff our young pocketbooks could afford.

You wanted to hear what Magneplanars were all about or the latest tube gear from Audio Research? How about a new solid-state company called G.A.S. with a power amp cheekily dubbed Ampzilla or that British LS3-5a mini-monitor people were abuzz over? Or the latest in turntable, arm, and cartridge designs from the likes of Linn, Technics, Dynavector, Grace, and Supex?

For all this and more, for a while anyway, Garland was *the* place. Owner John Garland was a friendly, seemingly down-to-earth guy with a choppy haircut and gap-toothed smile; he was also one canny salesman. He'd outfitted his place with a pair of warmly lit, quietly inviting listening rooms, an anteroom with a comfy seating area and large tropical fish tank, and a counter setup where a small rack of audiophile LPs could be found as well as the latest issue of *The Absolute Sound*, albeit in its early, digest-sized format. (It was here that I first discovered TAS.)

I was a semi-frequent visitor, I trust not too pesky, and on this day happened upon a demo featuring a pair of beautiful, starkly black, quite massive monaural power amplifiers—these, of course, were the legendary Mark Levinson ML-2s.

Arguably—well, not really—the ML-2 was the finest sounding solid-state amp of its era. And to this day I still recall the many times I was able to listen to it, especially in later years when the audio shop I worked at became a Levinson dealer. If you can—and of course, we *do*—lust after audio gear, then the ML-2 was surely responsible for many a lust-filled heart.

As Jon Valin wrote in *The Absolute Sound's History of High-End Audio, Volume Two: Electronics*, this Class A design "was certainly an ear-opener for those of us lucky enough to have heard it. Incredibly powerful, in spite of its 25W power rating, it was also incredibly gorgeous-sounding—the very model of liquidity, neutrality, and resolution."

At the time the $3600/pair asking price seemed like a king's fortune to my 20-year-old self. Today that number seems downright quaint.

And though in many ways they're very different animals, memories of the ML-2 kept surfacing in my mind as I spent time listening to the

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Zesto Audio Eros 500 Select Monaural Power Amplifiers reviewed here.

Because here we have, just perhaps, the makings of another classic Class A power amplifier.

Established by the husband-and-wife team of George and Carolyn Counnas, Zesto has been around for only a dozen or so years, but in that time, it has most assuredly established itself as a major player in the high-end marketplace.

George is responsible for the circuitry. He's been designing vacuum-tube gear since his college days in England and was also part of a group that created navigating systems for the RAF. He has great respect for, and also draws inspiration from, classic tube-amp designs dating as far back as the 1930s, while implementing the best that current technology has to offer regarding parts selection, computer-aided design, and build-quality. All Zesto products are designed and built by hand at the company's headquarters in Thousand Oaks, California.

George's wife Carolyn is an artist and responsible for the unusually beautiful look of Zesto's products, with their strikingly curvaceous structural elements and wavelike face panels. She's also an integral part of Zesto's business operation and by all accounts has been essential to Zesto's rapid rise to success.

Being monoblocks, the Eros 500 Selects are built and delivered as a mirror-imaged set, underscoring Carolyn's commitment to elegant looks. And though at 17" x 10" x 20" and 79 pounds each, they may not be the most Ampzilla-ish of today's designs, they're still plenty hefty enough for the average household to accommodate. They also run hotter than a mother—as a warning to that effect states on the top plate—so plenty of ventilation around them is required, and they'll most definitely warm your room nicely in winter and perhaps more than you'd like in summer. (Zesto is the Greek word for "hot," after all.)

The design is fully balanced pure Class A push-pull operation with no negative feedback. Given their high output power that alone marks the design as unique (to the best of my knowledge). Another thing that distinguishes the $35,000/pair 500 Select is the amplifier's unusual flexibility when it comes to tube choice and bias selection.

As George Counnas told me during a phone call, he doesn't like to box customers into a corner and is also keenly aware of the volatility of today's tube supply chain. As such the 500 Select accommodates four different tube types as well as a trio of auto-biasing choices, not only allowing customers options for their sonic and musical preferences but also accounting for varying room sizes and speaker types and sensitivities.

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"One size doesn't fit all," George told me.

The Eros 500 sports a sextet of output tubes—KT150s are what the amps come with—the design is also fully compatible with KT88s, KT120s, and KT170s.

A rotary knob on the top plate selects between a trio of bias settings, which yield the following output power per tube type:

Left Position:
- KT88 = 150Wpc
- KT120 = 150Wpc
- KT150 = 150Wpc
- KT170 = 150Wpc

Middle Position:
- KT150 = 200Wpc
- KT170 = 200Wpc

Right Position:
- KT150 = 250Wpc
- KT170 = 250Wpc

Moreover, the bias settings can be switched "on the fly," allowing users to immediately hear what effect each setting yields. In my system, with my Maggie 1.7*i*s, the results were easily discerned. The middle setting proved to offer the most rewarding combination of image specificity, tonal balance, and overall musicality. And as I used only KT150s for my evaluation, that's the setting I used throughout.

The 500 Selects also offer speaker taps for either 4- or 8-ohms operation. As the Maggies are nominally rated at 4 ohms, I started there. But Counnas suggested experimenting with the 8-ohm option, and to my surprise and pleasure this proved more satisfying. Underlining George's belief that "choice is good," one should generally expect more bass with the 4-ohm taps and greater openness with the 8-ohm.

George told me the amps sound best when driven in balanced mode, and my experience agrees with his assessment. I first tried the single-ended units, to quite excellent result I might add, with my solid-state Sutherland N1 preamp, which offers only single-ended output. After a few months I subbed in a balanced VTL TL6.5 Series II Signature linestage (using the Sutherland's phono section) to even finer results: a deeper, more resolved soundstage, less bunching of massed strings, greater inner detail and focus. To check my findings, I also tried the VTL's single-ended outs. And though the VTL and Sutherland are, of course, clearly different sounding, much of what I heard was certainly due to the fully balanced signal throughput.

The first thing that struck me as I fired up the 500 Selects is how wonderful all that power is. I don't just mean the ability to play music at lifelike (or near-) volume levels, but also the ease and freedom, the lack of system strain and listener fatigue, that goes hand-in-glove with the Eros 500's feeling of seemingly endless power reserves.

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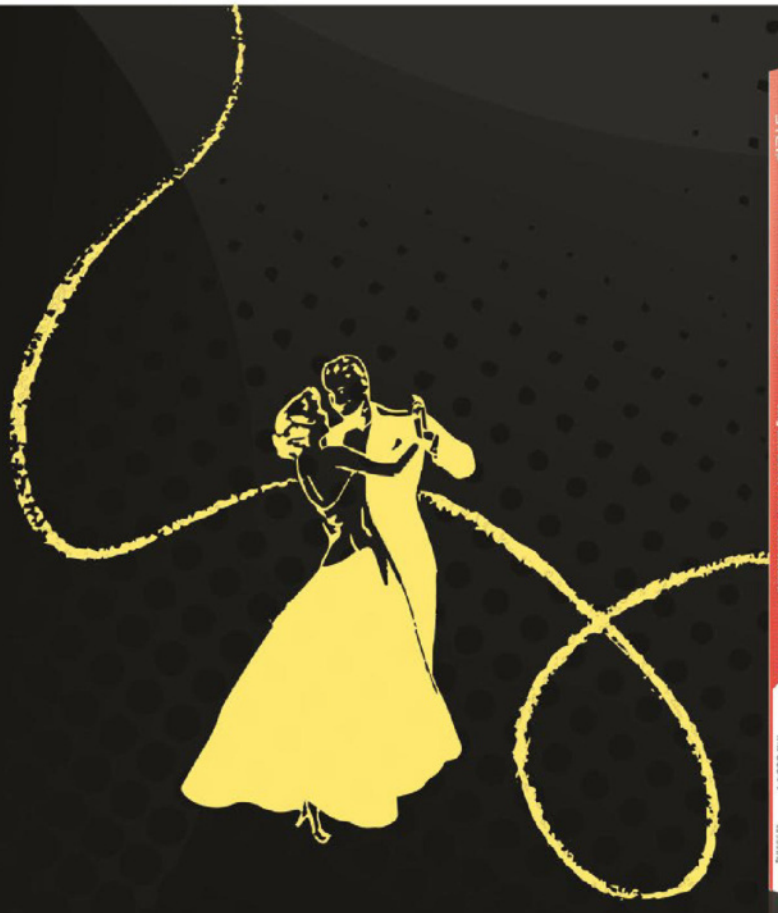

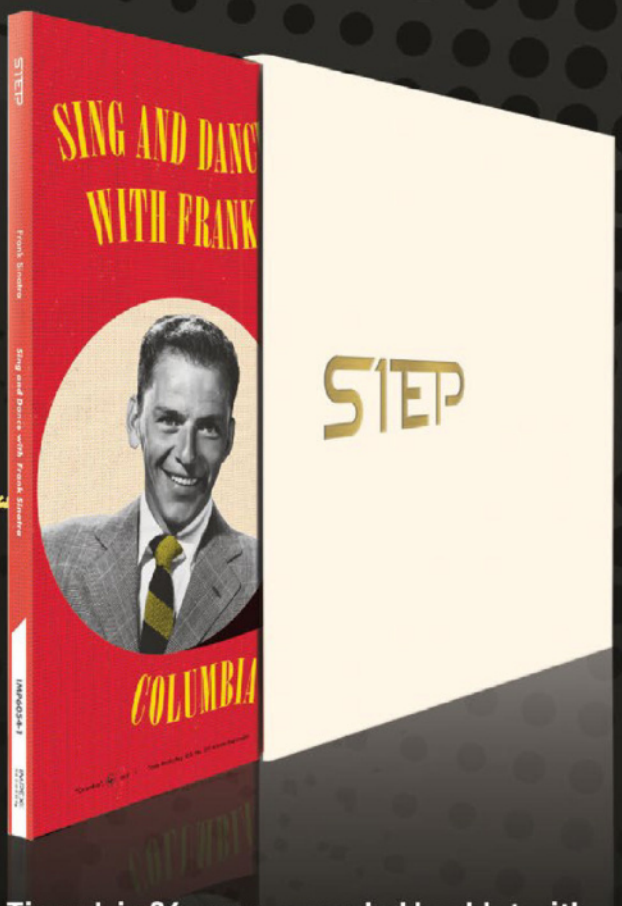

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Discussing this with George, he opined: "There's a lot of misinformation about power amplifiers. It's not so much the power but controlling speakers," he said, adding, "Class A 250 watts, what that means is it makes the music lively, it doesn't compress the sound, and lots of headroom makes for a more lifelike presentation." As Counnas also reminded me, "we don't double volume capability when we move from a 100-watt amp to a 200-watt amp, but instead get a 3dB gain increase each time we double power."

Magnepans are, of course, famous for gobbling power by the fistful. And though my Maggie 1.7is are in a small dedicated listening room and I've had plenty of amps of widely varying power come and go for review over the years, I still wasn't prepared for the extraordinary sense of freedom, of un-Maggie-like volume capability, these amps could deliver.

Take Analogue Productions' terrific 45rpm pressing of Steve Ray Vaughan's *The Sky is Crying* for a spin. His brilliant take on Hendrix's "Little Wing" floored me with its head-spinning combination of immediacy and wasp-sting intensity. The exquisitely beautiful, raw, tube-driven distortion of his Fender Strat with hypnotizing layers of overtones and pinging harmonic accents, at times whisper delicate, at others unleashed into overdriven *Texas Flood*-like waves of intense emotion. All the while his Fender amp happily humming in the background. Then there's Chris Layton's drums. So visceral and dare I say it, so real sounding. I think Magnepans, which are tympanic membranes after all, are one of the most realistic reproducers of drums. And sorry doubters, but with an amp like the 500 Select behind them the Maggie's can *effing* rock. Okay, not like a top cone-driven transducer but rocking, nevertheless.

Listening to Petteri Iivonen's take on Bach's Violin Partita No. 2 only reinforced my admiration for this Yarlung Records release. Talk about liquidity. Iivonen plays a marvelous sweetly toned 1767 Gagliano fiddle. The upper register is honey-kissed, light and limpid as dew drops; the mid-to-lower registers are sweet, too, but with just right edge of sandpapery grit. Heard through the Zesto 500, the entire presentation is exquisitely coherent, seamless from top-to-bottom—as if cut from whole cloth, as this magazine's founder might have said. Recorded live, this is one of the finest renderings I know of a solo acoustic instrument in real space.

Moving to another masterpiece for violin, the Anne-Sophie Mutter/Chicago Symphony recording of the Berg Violin Concerto on DG, again found me penning superlatives like "effortless, coherent, and liquid, displaying power with grace. Like a

Specs & Pricing

Power output: 250 watts
Number and types of inputs: Single-ended RCA; balanced XLR (with ground lift switch)
Tube complement: 6x KT150, 2x ECC82 (12AU7)
Dimensions: 17" x 10" x 20"
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Preamps: Sutherland N1, VTL TL6.5 Series II Signature
Cables: Nordost Tyr 2
AC Power: Nordost Tyr 2 power cables; Nordost Qx4 power conditioner and Qb8 AC distribution center

painting wherein not one brush stroke is out of place. Tonally these amps just seem right. Incredibly natural. Warm when called upon, such as the quiet passages, yet likewise angular and brash if need be."

On the flip side, the equally wonderful "Time Chant," by Wolfgang Rihm, dazzled from the start, as Mutter teased notes from her fiddle. The high-frequency trills, which seem to reach the upper limits but never sound harsh or strained, floated in air like fireflies. The notes seem unencumbered, simply there in my room. Not exactly like the real thing, but a damn fine facsimile thereof. As the piece gained momentum and intensity, the Zestos were totally unfazed, unleashing rapid-fire dynamic blasts mixed with quietly simmering sections. All in a most convincing stage presentation. Wide left to right, deeply layered front to rear.

Vocals, as you might guess, are likewise beautifully rendered by these amps. Whether you're in the mood for Cécile McLorin Salvant's *Mélusine*, Cat Power's recent take on Dylan's 1966 live set, or the glorious Gundula Janowitz singing Strauss' *Four Last Songs* from the recent DG Original Source series, I heard each of these as never before. The Zesto 500s are that revealing.

Finally, spinning Impex's stunning-sounding 45rpm release of *Ellington Indigos* simply underlined all I've previously written. From Ellington's unaccompanied piano intro to "Solitude," you'll hear what I keep describing as an exceptionally natural sound, layered with a marvelous recreation of the studio's ambience. Once the full band joins in, you'll experience a thrilling blossoming of dynamics, richly toned brass, and silky strings. Or check out "Where or When," and you'll hear the alto soloist's breath, while later the full orchestral fills the room, extending wall to wall, front to back, as well as in height, with an uncanny illusion of the players on a tiered bandstand.

One caveat: Although users of tube gear need accept the occasional tube failure as part of the deal, I needed to replace four output tubes during my evaluation process. (Counnas supplied a pair, and I purchased the others.) And while I don't know if this high failure rate was merely bad luck or due to the amps' high operating temperature, I suspect the Zesto 500's high heat does increase the toll on tubes. On the other hand, given the sonic rewards these amps deliver and that anyone spending $35k on a pair of amps can afford to keep a six-pack of spare tubes at hand, I wouldn't call that a deal breaker.

I was swept away by Zesto's Eros 500 Select Monaural power amplifiers and have remained so during my many months with them.

Although I'd prefer to think that I'm not such a "cheap date," from the moment I fired them up I was swept away by Zesto's Eros 500 Select Monaural power amplifiers and have remained so during my many months with them. Give them a listen, there's a very good chance that you too will be swept away. tas

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Hegel H600 Streaming Integrated Amplifier

Master of All Trades

Matthew Clott

IF YOU ARE CONSIDERING THE PURCHASE OF THE FLAGSHIP HEGEL H600 integrated amplifier ($12,500), there is a very high chance you already know what it is, what it can do, and how many published reviews already out there have raved about its prowess, sonic attributes, and phenomenal flexibility. A virtual Swiss Army knife of features and capabilities has been incorporated into Hegel's top-tier integrated. Yes, this review is a bit late to the game. No, I have not read any of the other reviews. Yes, I do enjoy being the last to the podium; it worked well for Mark Anthony!

First off, let's just say it: The H600 doesn't have a phonostage. Something, somewhere had to give, and clearly someone at Hegel put his foot down and just said, "No!" But it does have an HT pass-through feature on all inputs to allow you to run a processor directly into its amplifier stage, bypassing its preamp features. It also won't help you learn calculus or dry your dishes, but it will do pretty much every other thing you could desire from an integrated amp if you want to build a single-unit system or grow something wonderful with multiple sources and components. I spent the lion's share of the review period just listening to the H600 and nothing but the H600, fed by its essentially limitless digital-source arsenal.

This is a very ergonomically simple unit with two large knobs upfront that control input and volume, with clever use of those same knobs to get to all the control software and setting adjustments. A big, easily readable monochromatic screen in between the knobs tells you what you need to know. The knobs have a very nice feel. (As many of you know, I am a knob snob!) And the software menus are easy to navigate. The remote makes navigation even easier. The aluminum-enclosure construction is elegant, simple, rigid, and well designed; and the oversized aluminum footers look good and provide the support one expects. The rear panel has an abundance of digital inputs (Ethernet, USB, optical, and both coaxial and BNC SPDIF) and a BNC SPIDF output, as well as two XLR and two RCA analog inputs and both a variable and fixed RCA line-level output. The inputs are of good quality and leave nothing to be desired. Well-built speaker binding posts straddle the extremes on either side. The top has dual-layer milled air vents, which look nice and allow plenty of ventilation.

And why does it need all that ventilation? Because inside is a warp core (or a transformer, I always get them mixed up) feeding a dual-mono Class AB MOSFET amplifier producing 300 watts per channel into 8 ohms (doubling to 600Wpc into 4 ohms and stable to 2 ohms) with a damping factor of 4000. What this means is that this integrated can power and control any speaker you may decide to connect to it. The design is heavily based on principles implemented in Hegel's well-respected H30A reference amplifier. The power and control this integrated offers cannot be understated or underappreciated. It is an incredible achievement, and proper kudos must be given to the engineers at Hegel.

The preamp section utilizes the volume-attenuation technology of Hegel's reference P30A preamplifier and shares several of its circuit topologies. Hegel implements its proprietary SoundEngine 2 correction technology, described as using local and adaptive feed-forward technology to cancel crossover distortion and remove high-frequency distortion inherent in Class AB designs. The intended result is a much cleaner music signal with a larger dynamic range and reduced noise. Without the ability to turn SoundEngine 2 off and on, there is no real way to say how well it performs. But I had no complaints with what I heard, and I guess the proof is in the proverbial pudding.

If the 300Wpc amplifier is the heart of the system, then the DAC is clearly the brain. This is what one would describe as a feature-rich integrated. The built-in ESS 9038Q2M D/A converter is a bit-perfect design that can handle MQA 8x, 32/384 PCM, and DSD256, avoiding upsampling or resampling entirely (my personal preference). Utilizing a large dedicated power supply well shielded from the remainder of the internals, the DAC is fed by an internal server with built-in Spotify, Tidal Connect, UPnP, Qobuz Connect (pending), Chromecast, and Apple AirPlay; it will also soon be Roon ready. All are

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easy to set up and use via the associated tablet app. Of course, the digital inputs on the back also allow the use of any external source, and my Extreme music server fed it some sweet ones and zeroes to see what the H600 could really do. Playing this 300Wpc behemoth through my Wilson Alexx V loudspeakers let me see what a twelve thousand dollar integrated could deliver, and I was not disappointed. Which finally gets us to the creamy filling of this tasty treat.

Listening

You may not think you need 300 watts per channel or will ever use 300 watts per channel. But the absolutely effortless way in which music is conveyed and expressed by this integrated makes a convincing case for "more power is better." While it was never overbearing or overly exuberant, there was always a presence of power and control, like drinking from a water fountain fed directly by the Hoover Dam. As a result, the power output combined with the massive damping factor gave the overall presentation a sense of gentle majesty that was there for both the quietest and most dynamic passages. With my Alexx Vs, the H600 controlled the woofers with ease and provided dynamics beyond my expectations, considering the price point. That damping factor cannot be under-credited. Hegel is known to make amplifiers and integrated amplifiers that can manhandle the most difficult speaker loads. That is why I have Hegel's powering my Maggies at the office. The texture and inherent complexity of low-frequency reproduction impressed me. Mid- and upper-bass performance added resolution and refinement to the fray. As we enter the midrange zone, things get more interesting. The H600 is remarkably clean—not analytical or overly resolving, but very clean. Yet, it provided musical integration between the speakers and the room that I usually garner from more expensive tube equipment. I found it pleasant and engaging in a way that most other equipment in this price range simply isn't. Is that the SoundEngine 2 filtering or just good engineering? No clue, and don't care. I liked it—a lot! The high-frequency extension was very Hegel, if you know what that means. If not, the Hegel sound is neutral, airy, and refined without being overly dense or viscous. Staging and imaging were wide, deep, high, and well focused. No, H600 doesn't create a holographic image, and no, it doesn't go floor to ceiling and wall to wall. For $12k that's a tall ask—and an unreasonable one. But what it delivers is excellent and enjoyable and more than you deserve to get for everything the H600 can do and do well.

I will say that the unit performance depends on how much effort you bring to the table. Without question, it sounds best when asked to behave as a pure integrated amplifier fed an analog signal from my reference Taiko Extreme music server via my Pilium DAC (close to $80k worth of front-end gear). But this is not what one would buy an H600 for. When I fed the internal DAC via USB directly from the Extreme, I lost a layer of wow, but it was not an offensive difference. The Extreme was able to convey the subtlety and refinement that has led it to be regarded as one of the best servers on the planet. The Hegel's internal digital could take what the Extreme offers and deliver the goods but lost the superior timbre and imaging cues you gain from a top-tier DAC. However, most of you aren't going to use the H600 for that, either. What the H600 exists for and excels at is doing it all. With a pair of speakers, the H600, and my phone, I spent hours learning what the Hegel can do. Because during that time I was busy listening to music and not worrying about what wasn't there. The Hegel is an iPhone on audiophile steroids. It works. It's easy. It never gets in the way of listening by glitching or asking for setting adjustments or in any way removing you from just going from song to song and album to album. The H600 is a superstar at keeping you focused on listening and delivering a performance that keeps you invested and intrigued.

As an example, I was sitting in my listening chair running through Tidal Connect one auditioning evening. I snuggled into my chair with an overpoured glass of Woodford Reserve around 8:30pm

Specs & Pricing

Type: Integrated streaming amplifier
Power output: 300Wpc (8 ohms), 600Wpc (4 ohms); dual-mono
Frequency response: 5Hz–100kHz
THD: Less than 0.005% @ 50W into 8 ohms, 1kHz
Damping factor: 4000 (8 ohms)
Analog inputs: XLR (x2), RCA (x2)
Analog line-level outputs: XLR (x1), RCA (x1)
Digital inputs: Coaxial (BNC), coaxial (RCA), USB, TosLink optical (x3), network
Compatible formats: MQA, DSD up to DSD256, PCM up to 384/32 (depending on input type), Spotify Connect, AirPlay, Chromecast, Roon Ready, Tidal Connect, UpnP
Dimensions: 16.93" x 6.74" x 17.52"
Weight: 28.5 lbs.
Price: $12,500

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and connected with Jack Sparrow's (I mean Hans Zimmer's) *Pirates of the Caribbean, Part 2*. Truly a great soundtrack. Well, that turned into a Hans marathon and then into a John Powell marathon. And then a Hans Zimmer/John Powell combo with *Kung Fu Panda*. By the time I got to Master "Oogway Ascends," it was 3am. Poof.… Was it the best DAC on the planet or a top-tier music server that drifted me off to musical Happy Land? Nope. It was a Hegel H600 audiophile Swiss Army knife!

As an "all-in-one solution," the unit is remarkably silent, considering how many parts make up its whole. With multiple power supplies, mono amplifier sections, a preamp section, DAC, and streamer, it is quite impressive that the unit is not as noisy as a New York City subway station. I believe at least a part of that midrange engagement results from its impressively low noise floor. My notes circled "demure" several times. The closest I can come to an analogy to a person is Queen Elizabeth. Hear me out…. She was one of the most powerful people on the planet yet always carried herself with a sense of sincerity, honesty, humility, and confidence. Her most powerful and memorable moments are captured not with her words, but with a silent look or subtle smile that could move mountains. This describes the Hegel H600 almost exactly. Power and grace that demands respect but knows it deserves that respect.

I appreciate all that it can do and the fact that nothing seems to suffer to get it all done.

The performance of most $10k–$14k equipment simply cannot compete with much more costly gear, based on obvious limitations in parts, engineering, and materials. The Hegel H600 is a true high-end component. It never faltered for a moment while running my very expensive Wilson Audio Alexx Vs and yet sang equally well when running much more affordable transducers.

The H600 isn't the type of component you rave about. Not because it doesn't deserve it, but because it is above that. I respect the fact that it knows what it is and what it is supposed to do. I admire the absolutely incredible value it represents. I appreciate all that it can do and the fact that nothing seems to suffer to get it all done. I recognize that it may be the only product of its type in the price class it is in and that it represents a truly high-end component while sitting at a mid-level price point (compared to the $25k–$45k integrateds now filling the market). And, most importantly, I truly enjoyed my time with it.

Bravo Hegel. Bravo. tas

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VIVE

JMF Audio HQS 7001 Monoblock Amplifier and PRS 1.5 Linestage Preamplifier

LA

BY JONATHAN VALIN • PHOTOS BY WRIGHTSTEEL

FRANCE!

JMF Audio
HQS 7001
JMF Audio
Overload
Offset
High Temp
POWER
Meter
HQS 7001
JMF Audio
40
Mute
Standby
Direct
Source
PRS 1.5

Over the years I've heard and reviewed many fine solid-state amplifiers from the U.S., Canada, Great Britain, Switzerland, Germany, The Netherlands, Scandinavia, various Eastern European countries, and Japan. What I haven't yet heard or reviewed is a solid-state amplifier from France.

That is about to change.

Though I'm a bit of a Francophile when it comes to food, wine, art, literature, and music, I haven't really dipped more than a toe or two in French hi-fi—and that dip, with various Jadis tube amplifiers in the 1990s, was a cautious one. (Back in the day, Jadis' longtime U.S. distributor, the late Victor Goldstein, who was sadly taken from us at the start of the COVID epidemic, used to turn his head away and shield his eyes every time he switched on a big Jadis monoblock—for fear of fireworks.) Just lately, however, I've gotten several pieces of pricey solid-state Gallic gear—two of which, JMF Audio's HQS 7001 monoblock amplifier and PRS 1.5 linestage, I'll be reviewing here. (A separate article on the third, Analog Audio Design's TP-1000 15ips reel-to-reel tape deck, is forthcoming.)

If you've never heard of JMF Audio, join the crowd. Until its importer, Audio Skies' Michael Vamos, and its brand ambassador, Fidelis Audio's Walter Swanbon, showed up at my door bearing gifts, I hadn't heard of JMF, either. But then you and I don't run a recording studio, which is where JMF's founder, the late Jean-Marie Fusilier, made his reputation. Though his original company (founded in 1974) specialized in high-frequency and infrared remote-control systems for industrial, defense, and nuclear-plant applications, Jean-Marie was also a passionate music lover and audiophile (does this begin to sound familiar?), and in 1985 he launched a side business to "develop linear audio solid-state power amplifiers, using high-voltage rails for greater headroom, high-current-enabled outputs for the best control of the speakers, selected and matched transistors for linearity, high-purity materials to carry the signal, short-signal-path circuit design, direct coupling in the output stage, high internal energy reserve for best transient response, made-to-measure passive components from specialists in aerospace and defense, and techniques and parts normally intended for telecom and radar systems." His novel amplifiers soon caught the eyes and ears of several celebrated recording engineers in Europe and the U.S., who bought them for their studios. (Artists who have recorded in venues equipped with JMF amps make for a veritable *Who's Who* of late-twentieth-century and early-twenty-first-century musicians, ranging from Sting, INXS, Robert Palmer, and Aerosmith, to Willie Nelson, Shania Twain, Celine Dion, and Mariah Carey, to the London Symphony Orchestra and the Moscow Symphony Orchestra and scores of others.)

Though his amps were a commercial success in the pro-audio world, Fusilier was too busy with his industrial and defense remote-control business to broaden his market in the consumer sector. Happily, his sons Laurent and Arnaud, university-trained electrical and mechanical engineers (and

J-M-F Audio
HQS 7001
LINE IN
OUTPUT
HANDMADE IN FRANCE
CE

music lovers), joined JMF Audio in the early 2000s. Under their guidance, JMF developed and introduced a jackpot of new high-end-audio products, including what might have been the first 768kHz DAC (2003), a psychoacoustically based DSP crossover (2005), the HPM line of loudspeakers (2007–2009), and the CSV pure analog precision volume control, along with many other advanced components, including the amp and preamp under review.

To look at, the JMF HQS 7001 monoblocks are unprepossessing. Though not as strictly no-frills as Fusilier *père*'s pro-audio originals, they remain (a bit deceptively) utilitarian in appearance—squat, rectangular, completely sealed boxes, made from 10–16mm-thick anodized and brushed aluminum parts. What makes these chassis deceptive is that they actually house a second chassis, within which all the 24k-gold-plated circuit boards, resistors, capacitors, transistors, and transformers are painstakingly segregated and mounted. Both chassis sit on proprietary decoupling feet.

The front-panel controls are equally spare and functional: towards the right center, a vertically aligned series of three small LEDs, which, when lit, indicate overload, DC offset, and high temperature; towards the bottom center, an on/off pushbutton; and on the right center, another vertically aligned series of seven numbered LEDs, which, when metering is activated, light up to indicate output levels (from -15dB to +3dB). There is a toggle switch beneath the metering LEDs to turn the meter on and off (an LED above the switch indicates its status).

The back panel of the amp is just as spare and functional as the front: on the far left at the top is an XLR input, beneath which are two sets of positive/negative speaker connectors (one set gold-plated WBTs and the other proprietary 6mm LSS), below which, at the bottom left, are a 4mm grounding socket and a captive power cord. (JMF supplies its own pc's for the HQS 7001; there is no IEC option for aftermarket cords.) To the right of these inputs and outputs are the rear-mounted cooling fins.

INTERNALLY, THERE HAVE BEEN MANY CHANGES TO THE JMF AMPS AND PREAMPS OVER THE YEARS, BUT THE FUNDAMENTAL DESIGN APPROACH HAS STAYED THE SAME.

The dual-mono, fully balanced PRS 1.5 linestage preamplifier virtually duplicates most of the design touches found in the HQS monoblocks. It, too, is housed in a double chassis made from thick brushed and anodized aluminum parts. It, too, has a spare and functional front panel, with a large, circular, dual-bearing volume control at its center that is absolutely silken in operation, a rectangular LED panel to its right to indicate volume level, source, and other parameters, and, to the panel's right, two pushbuttons that switch sources, mute the preamp, put it in standby, or select a "direct" connection for use with a tape recorder or a headphone amplifier. The back panel of the preamp is the only "busy" spot on either JMF component. It is loaded with inputs (three pairs balanced, three pairs unbalanced) and outputs (two balanced, one unbalanced), a 4mm grounding socket, an on/off toggle, and oddly (given the dedicated power cords on the amps), an IEC socket for the cord of your choice.

Internally, there have been many changes to the JMF amps and preamps over the years, but the fundamental design approach has stayed the same. For the amps, the goals remain "high reserves of energy for instant delivery at the output on fortissimos; high voltage for superior headroom and higher efficiency; and high current output for best possible control of loudspeakers, allowing the amplification structure to limit the use of compensations, such as excessive feedback loops." For the preamp, the goals are "the absence of insertion loss and faithfulness to the music," achieved in part via the PRS' patented CSV volume control, which, rather like Soulution's ingenious vc, uses digitally driven and

galvanically isolated stepped attenuators to set levels with high precision, lower noise, zero-out phase shift, and increase output headroom.

Most of the changes made in JMF's latest electronics involve the build and selection of component parts—the fruits of long research and experimentation. "The JMF Audio HQS power amplifiers and PRS preamplifier utilize selected and uncommon devices for audio applications: high-frequency precision transistors in matched differential pairs, bespoke passive parts, proprietary dual-sided circuits boards coated in 24k gold to which caps, resistors, and transistors—over 700 of them on certain boards—are hand-mounted and hand-soldered using bespoke solder."

The results, JMF claims, are amps and preamps that lower noise to a minimum, preserve signals with no insertion losses, and better control the counter-electromotive force of loudspeaker drivers and crossovers by means of the unstinting delivery of current. "Large signals never mask small signals. Notes last longer. And dynamics remain 'linear' down to the lowest levels, allowing the reproduction of the smallest details, the subtleties of ambience, and the wide and coherent natural soundstage caught at the recording."

As was the case with Magico's S3 2023 loudspeaker, JMF's big sonic claims for its electronics turned out to be verifiable. Indeed, and rather ironically given that JMF pointedly limits the use of negative feedback and the Swiss company Soulution embraces it (in a highly ingenious and sophisticated form), upon listening to the HQS 7001 monoblocks and PRS 1.5 preamplifier, my first thought was that they sounded uncannily like my reference Soulution 711 amplifier and 727 pre in tonal balance, transient response, harmonic/dynamic duration, and sheer density of musical information.

Sonic density is something I've touched on in other places (it is part and parcel of what I call completeness), but with these French electronics (and Soulution's Swiss offerings), it is a bedrock virtue. To apply an analogy I've used before, if you think about how a half-tone print of a photograph looks—in which everything is reduced to a separate dot of pure white, grey, or pure black (rather, dare I say it, like the data streams in digital audio)—and compare it to the appearance of a continuous-tone photograph, in which the same image is reproduced in a broad, smooth, unbroken spectrum of blacks, greys, and whites, you'll get what I mean by density. Details which stand out coarsely in the half-tone are subsumed into wholes in the continuous-tone print. They're still there, of course, but they are blended and unified, as they are in life, into a sonic image that is completely and realistically "filled in."

Why JMF's electronics should so fully share this signal virtue with Soulution gear, which (as noted) uses a very different design approach, is an interesting question to which I don't have a really good answer. Given the emphasis JMF puts on its use of 24kt gold reminded me that the gold-wire interconnect and speaker cable from Siltech that I used to fiddle with, lo, these many years

JMF Audio HQS 7001 Monoblock Amplifier and PRS 1.5 Linestage Preamplifier

ago, also had a similar and beguiling density of texture and timbre, only the gold wire seemed to soften dynamics and mask detail, and the JMF gear does not.

I doubt that the answer to this conundrum is simply the superior application of gold-plated circuit boards. More probably, it is the greater control and noiseless purity of the high current (112 amps in the 300W HQS 7001 monoblocks) generated by the HQSes' temperature-regulated, individually powered, multiple-matched-resistor, capacitor-free, zero-inductance output stages, which really do seem to handle speaker loads (such as that of the 4-ohm/85dB-sensitive Magico 2023s) with iron grip. (The 7001's high damping factor of better than 1200 doesn't hurt, either.) The PRS preamp's extremely low noise and sheer density of musical information obviously complement the amp's control and purity.

Given a high-resolution loudspeaker like the Magico S3 2023, you can hear the results of the JMF components' combined virtues on something as seemingly straightforward as "Ndugu" Chancler's initial drumbeats from "Billie Jean" on *Thriller*. The HQS/PRS' tone color is so intensely rich, its reproduction of instrumental body so sensationally three-dimensional, its resolution of detail so fine that you can not only clearly visualize the foot pedal, beater, and kickdrum head Chancler is using; you can also hear the mechanisms—the slight metallic squeak of the pedal spring and linkage assembly—that are making the contraption work. The same holds true for performance and mix details, like Steve Lukather's great rhythm guitar intro to "Beat It," in which his intermittent percussive chucking becomes as clear as day, or the incredible font-to-back and side-to-side soundstage spread of Michael Jackson's yips, yaps, and backup vocals, which pop up (all over the stage) with a color, clarity, and three-dimensionality that are astounding.

However, saying that the HQS/PRS is a monster of resolution is a bit misleading, as those words imply a thinned-down, analytic presentation. The fact is that through JMF gear you don't hear the things I just mentioned from the MJ album as if they are separate, spotlit details. You hear them as indivisible parts of wholes. Indeed, you need to willfully pay attention to such minutiae to isolate them as I have, so fully blended are they with instrument and instrumentalist in the JMF soundfield. This is one reason why I kinda disagree with another rave review of top-line JMF electronics by a writer I know well and admire, which compared the HQS amps and PRS preamp (quite favorably) to proverbial straight wires with gain. This famous analogy is meant to convey the notion that nothing is added or subtracted between the original signal and its reproduction. While the minimization of "insertion loss" is, as noted, one of JMF's goals, beyond their outstanding holism its amps and preamp, nonetheless, have a sound of their own. That it happens to be a sound I'm crazy about (and find very lifelike) doesn't make it any less of a sonic signature.

To wit, like the Soulution and MBL components that are my references, the JMFs are a bit "bottom-up" in character, which is to say that they are weighted slightly (albeit congenially) to the bottom octaves and the midrange, while their top end is sweet, soft, and liquid—anything but aggressive or bright. In other words, the JMFs have an inherently rich, full, darkish tonal balance. (All the solid-state amps I've preferred do.)

While this might seem to make them less than fully source-neutral and transparent, that is not the case. The JMFs faithfully reflect miking, mixing, and performance style. For instance, on the great Kevin Gray/Cohearent Audio mono reissue of *Chet Baker Sings* [Blue Note Tone Poet], you can clearly discern how close Baker is to the mic (which, according to the liner notes, was a tube-powered Western Electric 640AA condenser, even though the mic in the cover photograph is clearly an RCA 44-BX

THE JMFS FAITHFULLY REFLECT DIFFERENCES IN MIKING, MIXING, AND PERFORMANCE STYLE.

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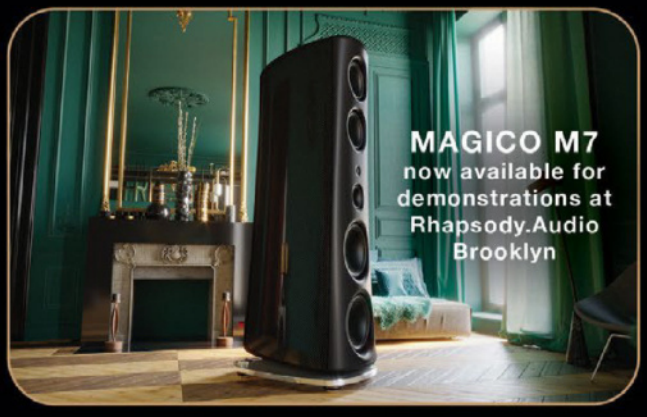

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ribbon—and sounds like one). The fact that Baker is virtually swallowing the microphone makes the image of his voice considerably larger than, say, MJ's precisely imaged background vocals potted in on *Thriller*.

Of course, you can hear many of these differences in image size, mic type, and performer/mic location through virtually any high-quality amplifier. What you won't necessarily hear is the way this superb reissue increases the color and body of Chet's whispery high-tenor throughout its narrow, near-monotonal two-octave range (A2–A4) or the clarity of the minor-key excursions Chet adds to his delivery of the lyrics (notably at the ends of songs), keeping things appropriately intimate and just a tad characteristically inconclusive. (It's as if you were expecting a final note or cadence that Baker deliberately *doesn't* deliver, leaving the emotional tenor of the lyrics a little jazzily mixed.) Despite the very close miking, you don't hear a trace of the sibilance or whistle that you hear on Louis Armstrong's equally closely miked vocals on *Ella and Louis*.

Given the analogies I've drawn to Soulution gear, you're probably wondering if the two are sonically identical. The answer is more yes than no, but there *are* no-parts. In addition to their sensational soundstaging, the JMFs project spotlit vocals and instrumentals a bit closer to the plane of the loudspeakers than the Soulutions do. This has no effect on soundstage depth; in fact, it rather increases the illusion of depth with ensembles in which other vocalists or instrumentalists are situated further back on the boards. The JMFs' soundstage may also be a wee bit wider than that of the Soulutions, although this depends on the recording. In addition, the amps' upper midrange is a touch more prominent (q.v., their slight imaging forwardness). Functionally, unlike Soulution, JMF does not offer a (superb) optional built-in phonostage for its preamp. The PRS 1.5 is strictly a linestage. And at 300W into 8 ohms, the JMF HQS 7001s are nominally a bit more powerful than the Soulution 711, which means you can play your music even more unbearably loudly, for what that's worth.

THEIR PRESENTATIONS HAVE LIFELIKE FULLNESS OF COLOR, THREE-DIMENSIONAL BODY, AND DYNAMIC EXPRESSIVENESS FROM THE SOFTEST PASSAGES TO THE LOUDEST ONES.

JMF Audio HQS 7001 Monoblock Amplifier and PRS 1.5 Linestage Preamplifier

In noise, resolution, tonal color, dimensionality, dynamic range, and that magical sense of presence that makes recorded instruments and musicians sound as if they're in the room with you (or you in the room with them), the JMFs and Soulutions are so closely matched that I can't hear much difference between them. Both are also exceedingly lifelike when it comes to the durations of notes. Neither overemphasizes the starting-transient phase of the dynamic/harmonic envelope, as solid-state amps of yore always did —and many of today's highest-enders still do. The amps and preamps from both marques give equal time to the development of steady-state tone and decay, which is why their presentations have such lifelike fullness of color, three-dimensional body, and dynamic expressiveness from the softest passages to the loudest ones.

To prove this last point, all you need do is subject the JMFs (or Soulutions) to a musical workout such as the Smetana Quartet's performance of 20th-century Czech composer Jindrich Feld's String Quartet No. 4—a neo-Bartókian piece recently gifted to me on LP by my music-loving friend Mark Lehman. In Feld's Fourth Quartet, dodecaphonic themes are driven along by constant (often abrupt and violent) changes in timbre, intensity, duration, pitch, and articulation. (Feld makes use of just about every bowing technique in a string player's repertoire, from mournfully sustained notes on single strings, to leisurely *legatos*, to percussive *martelés*, to fleet *sautillés*, to herky-jerky *glissandos* that descend the scales like a drunk stumbling down a staircase, to entire passages played *pizzicato*.) The piece is a musical *tour de force*, which the JMFs reproduce with as much you-are-there realism as good miking in a large, warmish hall will allow. Through the JMFs, the two violins, the viola, and the cello never sound as if they are all string (i.e., all starting transient); even on the pizzicatos you get a healthy taste of soundboard and wooden body and the rich reverberance of decay.

Bottom line? JMF's amps and preamp may be new to me (and to you), but if I have a say in it, they won't stay that way for long. (Our sister magazine, *hi-fi+*, has already awarded them Product of the Year awards.) I plan to listen to more of the French company's offerings as soon as I can get my hands on them—and intend to add the HQS 7001s and PRS 1.5 to my collection of reference electronics. These are world-class offerings that do just about everything musical as well as such things can be done by solid-state components, even in comparison with the world's finest competition. If you're in the market for topnotch monoblocks and a superlative linestage (and have the requisite *l'argent*), well…*vive la France*!

LA SOUPE À L'ALPHABET

LIKE VIRTUALLY EVERY other company in high-end audio, JMF uses a bundle of initialisms to describe its proprietary components and circuits. In case you've been wondering what some of these things stand for, here is a little lexicon supplied by JMF's Laurent Fusilier: "From the start, the power amplifiers have been given model names in the form of HQS with an additional 4 numbers. We have kept the idea and also named most concepts we think are keys with three-letter acronyms, which helps presentations and understanding. These acronyms are names and not necessarily exact abbreviations of the technology.

"**HQS** stands for High Quality Sound (please excuse the banality from the non-English-speaking designer of 40 years ago).

"**RPS** stands for Reservoir Power Supply, denoting the large reserve of energy made of banks of bespoke capacitors.

"**MTP** stands for Multiple output Transistors and controlled Paralleling.

"**LDA** is for Linear Driver Amplification denoting the driver board (symmetrical high-linearity analog circuitry) that drives the output stages.

"**PRS** denotes the line level preamplifier family (counting only one reference model): PReamplification and Source selection.

"**CSV** is for the volume control concept: Controlled Stepped attenuator for Volume.

"**PGP** stands for Pure Gold Process, involving 24k gold and a unique substrate common to all our analog printed circuit boards, developed by JMF Audio in the early 90s and refined with time. It requires hand placement and hand-soldering of every component at our manufacturing facility with a bespoke solder, which involves higher soldering temperatures along with short exposure time—pad by pad, pin by pin, from the tiniest components using a magnifying glass to the largest ones. Also uncommon since incompatible with automated processes, components are populated on the bottom and top of the boards for maximum compactness and shortest tracks lengths. The gold substrate is made for JMF Audio under confidentiality terms by a company that specializes in precious metal handling. We found this printed circuit board technology to harmonize with our linear electronic circuitry for the presentation of music."

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SPECS & PRICING

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Output current capability: 112A
Load impedance: >1.5 ohms recommended (tested down to 1 ohm at full output power at the manufacturer)
Monitoring: Level metering (-15dB to +3dB, deactivatable), input offset, overload, high temperature
Bandwidth: Better than 0.1dB 3Hz–20kHz for 250W/4 ohms, small signals better than 1dB at 100kHz
THD+N: Better than 0.01% for 250W/4 ohms at 1kHz (0.001% typ. un-loaded) BW. 20Hz–20kHz
Signal-to-noise ratio: 110dB typ. un-weighted 20Hz-20kHz
Damping factor: Better than 1200 at 8 ohms, wide band
Audio signal coupling: Direct coupling
Dimensions: 19" x 5.9" x 21.5"
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Price: $77,900/pr.

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Balanced inputs: 3
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Unbalanced outputs: 1 modular, fixed or variable
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Maximum input level at max volume: 10V (+22dBu) into 10k ohms load
THD+N: 0.0002% typ.(+22dBu 1kHz in/20Hz–22kHz)
Interferences rejection (balanced input): 100dB typ.
Maximum output level: 3V (+11dBu, XLR bal)/1.4V (+5dBu, RCA), version F
Global signal bandwidth: 1Hz–150kHz (intentionally limited for RF immunity), 20Hz–20kHz (+0.0/–0.0dB)
Signal-to-noise ratio: 120dBA typ. (+22dBu), version F
Channel separation: >100dB(10V output 1kHz, gain min.)
Output impedance: 50 ohms
Maximum gain output/input: 12dB (XLR in), +18dB (RCA)
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Phonostage preamps: Soulution 757, DS Audio Grand Master EQ
Power amplifiers: Soulution 711, MBL 9008 A, Siltech SAGA System V1/P1, Odyssey Audio Stratos
Analog source: Clearaudio Master Innovation, Acoustic Signature Invictus Neo/T-9000 Neo, TW Acustic Black Knight/TW Raven 10.5
Tape deck: United Home Audio Ultima Apollo, Metaxas & Sins Tourbillon, Analog Audio Design TP-1000
Phono cartridges: DS Audio Grand Master EX, DS Audio Grand Master, DS Audio DS-W3, Clearaudio Goldfinger Statement v2.1, Air Tight Opus 1, Ortofon MC Anna, Ortofon MC A90
Digital source: MSB Reference DAC, Soulution 760, Berkeley Alpha DAC 2, Kallista DreamPlay XC
Cable and interconnect: Synergistic Research Galileo SRX (2023), Crystal Cable Art Series da Vinci, Crystal Cable Ultimate Dream
Power cords: Crystal Cable Art Series da Vinci, Crystal Cable Ultimate Dream, Synergistic Research Galileo SRX 2023
Power conditioner: AudioQuest Niagara 5000 (two), Synergistic Research Galileo SX
Support systems: Critical Mass Systems MAXXUM and QXK equipment racks and amp stands
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Acora Acoustics VRC Loudspeaker

Monumental

Andrew Quint

Four years ago, I reviewed the Acora Acoustics SRC-1, a two-way floorstander that was one of the Canadian loudspeaker-manufacturer's first three products. Acora is a relative newcomer to the high-end industry, launching in 2018, but the company's profile has been high from nearly the beginning, in large part because of the attention-grabbing granite enclosures of its transducers. For more than half a century, Acora founder Valerio Cora's family business in Toronto has been "dimension stone"—natural rock or stone that's cut to a specific size and shape. Cora is an IT specialist and lifelong audiophile who had long wanted to build a speaker with a cabinet made of stone. This became possible when CNC (computer numerical control) methodology matured and allowed for pieces of granite to be cut to the sufficiently small tolerances (less than 0.1mm) necessary to create a box as airtight and vibration-free as anything made from MDF, solid wood, aluminum, or resins.

When Valerio Cora delivered the 246-pound SRC-1s in early 2020, he casually mentioned that a bigger Acora was something he was hoping to develop. In fact, at that time, Cora was already addressing the technical problems he needed to solve in order to offer a larger three-way loudspeaker. The 430-pound, $218,000/pair VRC (the model name is the designer's initials—Valerio Renato Cora) made its public debut at the Florida International Audio Expo in February of 2023. It was played in a capacious ballroom with *primo* electronics and made quite an impression on the showgoers who heard it. I half-jokingly suggested that I ought to try out the VRCs in my home system and, to my amazement, Valerio said he thought that could work. I gulped hard. In my 225-square-foot room? Was he sure? Valerio was sure; after all, he'd been there. Robert Harley green-lighted the review, and ten months later, on a dreary December afternoon, a substantial box truck pulled up outside my condominium, followed 20 minutes later by an SUV carrying Cora, his wife Sherree, and Isaac Markowitz, Acora's Director of Sales and Marketing.

Two large cardboard boxes were lowered to the street with the truck's power liftgate. Valerio and Isaac wrestled each in turn onto a heavy-duty hand truck, wheeled them through the garage to the elevator, and up to my apartment. The two have done this together regularly but still don't make it look easy—there was plenty of grunting, grimacing, and, occasionally, worriedly barked instructions. As they advise at the bottom of your TV screen during automobile ads, "Do not attempt." (In fact, if you purchase a VRC, someone from the manufacturer, possibly

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Valerio Cora, will come to your home to supervise unpacking and installation.) Approaching their listening room destination, the cardboard boxes were lifted to reveal the VRCs sitting on a thick plywood platform. Boxless, they were transferred back to the hand truck and then to rubberized plastic furniture sliders for final positioning.

The Acora VRC is a truncated pyramid rising 52½" above the floor on its spikes, which are inserted into an integral T6 aluminum outrigger base. The footprint of the cabinet is 18.5" wide by 21" deep; the top surface is tapered to 8" x 12". Each enclosure is fabricated from six pieces of 30mm-thick granite, bonded together with an epoxy-based adhesive developed by Valerio Cora that's more akin to those used in dentistry than the formulations usually employed by the stone industry. There is no internal bracing. A purchaser has a choice of several granite varieties, sourced from different corners of the world. The review pair was Black Galaxy granite, so-called for the sparkling gold flecks embedded in the stone that evoke the night sky. With smaller Acora models, Cora allows that the choice of granite species will affect the character of the sound; he feels this is much less of an issue with the VRCs. Around back, toward the bottom, are two 2" ports and, between them and slightly lower, a single pair of binding posts.

The VRC is Acora's first three-way design. Valerio Cora declines to identify the source of the high-frequency and bass drivers but will disclose that a small German company manufactures the beryllium tweeter to Acora's specifications. A typical beryllium driver is smaller (26mm) than the VRC's, which is a 34mm-diameter device. This results in a lower resonance frequency and—more importantly, says Cora—assures that "the propagation wave never makes it to the surround." Two 12" woofers operate in parallel, covering the same frequency range. The two Scan-Speak 4.25" midrange drivers are the same ones seen in Wilson Audio Specialties' top models, extensively modified in-house by Acora. Although the internal space of the VRC cabinet is a single compartment, within that volume each midrange driver gets its own hardened carbon-fiber enclosure. There is damping material inside the cabinet, a carbon-fiber twill, that's meant to slow down the propagation wave to a point where it won't excite the midrange drivers.

Attaching the five drivers to the front baffle is challenging, as granite is noncompressible and can't grip a screw. Cora solved this problem by developing another adhesive, a "secret sauce"—Val's term—that actually interacts with the crystalline structure of the granite. It's introduced into the holes drilled to accept the hardware, securing the tweeter, midrange, and bass drivers to the enclosure very effectively.

The midrange/tweeter/midrange (MTM) arrangement of the drivers—also called a D'Appolito configuration—is known to reduce floor and ceiling bounce. Cora explains: "The original standard of a D'Appolito requires a third-order electrical crossover for the intended phase alignment; it was then massaged to include fourth-order crossovers with the midrange drivers of a three-way system. I don't really care if the name is given: Yes, the topology of the drivers was done to control vertical dispersion, but it was also to create a focus window with the tweeter where the plane of the acoustic energy was [optimally] balanced."

Cora largely irons out these problems in the crossover, which has been designed with a cost-no-object approach

The crossover network, fourth-order as noted above, is related to the VRCs' elite performance and the princely sum that is charged for them. While other manufacturers address issues of phase alignment with physical measures—for example, the multiple adjustable driver enclosures of big Wilsons—Cora largely irons out these problems in the crossover, which has been designed with a cost-no-object approach, in terms of parts-quality and the manufacturing process. "Even the internal wire gets into the thousands," Cora told me. "The crossover support boards are custom printed for each batch of components due to minor changes in the physical sizes of those components that come from production variations we cannot control. We're talking ten thousandths of an inch. So,

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we reprint the board based on a formula that keeps the intended tolerances. This is very expensive."

In my 15' x 15' room—there is a hallway off to one side near the front that averts standing waves, and the ceiling height varies from 10' to 11½'—the process of positioning the VRCs took Val, Isaac, and Sherrie about four hours. It began with minute adjustments to the position of the VRCs on their sliders until the best sound was achieved and then inserting the supplied adjustable spikes and meticulously leveling the speakers. There can be no question where Acora comes down on the issue of coupling vs. decoupling a loudspeaker to the surface it sits on. Any movement of the speaker resulting from playback will impact the sound, Valerio maintains—just a tenth of a millimeter affects a 10kHz band of the frequency spectrum. Isaac noted: "This is why some speakers get 'hashy' at loud volumes—it's that movement back and forth. We often perceive that as hard or glassy." When Team Acora departed, the central axis of the two VRCs was 8' apart with the loudspeakers 2' 4" from the CD shelves and GIK quadratic diffusers behind them. They were also sited 8' from the optimal listening position and canted in ever so slightly towards that location. Valerio declared himself pleased with the sonic results—a good thing as I knew I would not be moving the speakers from the exact spots where he left them.

Mostly, the VRCs were auditioned with my usual amplifiers, a pair of Tidal Audio Ferios monoblocks and then, briefly, with Pass Labs XA 60.8s. Digital sources—a Sony X1100ES for discs and a Baetis Reference 3B server for streamed and local files—were routed to a Tidal Contros controller/DAC. LPs were played on a Vertere MG-1 turntable and SG-1 tonearm fitted with an Acoustical Systems Archon cartridge. The phonostage was the Pass XP-27, which sent signal via the analog bypass circuit of an Anthem AVM70 on to the amps. Analog cabling was a mixture of Siltech and Transparent; digital wires were Apogee Wyde Eye (SP-DIF) and Wireworld Starlight (AES/EBU).

From the first sounds produced by the Acora VRCs, their exceptional immediacy commanded my attention in much the same way that live music does. This was evident not only from the sweet spot at normal listening levels but also off-axis with music playing softly. Sherrie Cora commented, "An important goal for Acora speakers is that they can be enjoyed by all the people in the room." That said, as placed in my room by Valerio, *et al.*, when I sat eight feet from the front baffles, the sound was too immediate—very much a nearfield experience which, for me, simply doesn't make sense if the performance was recorded at a distance. Moving the sofa back 10"—my ears were now close to nine feet from the loudspeaker—made an enormous difference. Close-up chamber music and small group jazz recordings still had an onstage-with-the-performers presence, while more distant symphonic fare had the requisite atmosphere and natural blend.

The VRC has no consequential deficiencies, but its strongest suit may be that immediacy referred to above. Valerio Cora maintains, and I can't disagree, that this aspect of the speaker's sound is a measure of their exceptionally fast, clean transient response. Possibly, the best orchestral instrument with which to demonstrate this is the modern pedal harp. (Castanets, woodblock, or claves might even be better, but in a given composition, these percussion flavorings are used only sparingly and are thus harder to employ as a sonic evaluation tool.) On *The Healing Harp,* recorded in 1994 for Philips Classics, Naoke Yoshino plays a program that spans the Classical era to the twentieth century. From top to bottom—the harp has the widest range of any orchestral instrument—the initial attack of each note was seamlessly attached to the main body of that discreet musical unit, no matter how fast the passagework. The nature of the sound's leading edge is different for high strings and low ones, and the VRCs got the dynamic envelope and tonality exactly right. This is critical, as the essence of the tonal quality of an instrument is established by those initial transients; shorn of that informa-

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Weight: 430 lbs. each
Price: $218,000

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tion, timbral specificity is lost. Markowitz points out, "If you take a clarinet, an oboe, a violin, and a piano and record, let's say, the D above middle C, if you remove the leading-edge transient, you cannot tell them apart." The VRCs do many things right, but they are second to none when it comes to providing naturally inflected dynamics ranging from loud to soft, and everything in between.

Several aspects of the VRCs' design are responsible for the loudspeakers' nonpareil reproduction of musical transients, including the physical and electronic time-alignment of the drivers, the construction of the drivers themselves, the inert nature of the enclosure, the coupling of the loudspeaker to the floor, and meticulous setup. This part of the VRCs' performance, in turn, contributes to the dynamic liveliness the speakers manifest in spades, as well as tonal accuracy and a believable spatiality.

In terms of low-frequency reproduction, the Acora's produce satisfying weight and fullness. There are two things they *don't* do, for which we should be grateful. First, they don't produce bass that isn't there on the original recording. Rock/pop recordings from the analog era often lacked deep bass (intentionally) and artificial extension can undermine clarity and power. Secondly, when deep bass *is* present, you can hear it as distinct from the bass content above 40Hz. For example, in the finale of the Saint-Saëns *Organ* Symphony, as recorded by the Philadelphia Orchestra under Christoph Eschenbach for Ondine, beginning at about 4:20 are a series of chorale-like phrases featuring the brass section playing full out. At the end of each phrase, the organ adds a loud chord of its own, considerably augmenting the bass foundation of the orchestral sonority. The effect registers fully with the Acoras. Likewise, with well-produced hip-hop—say, Dr. Dre's "Keep Their Heads Ringin," the lowest synthesizer tones can readily be perceived as doubling a line an octave above them. I may have actually lost a small amount of deep bass when I pulled the "sweet spot" back. Especially with smaller spaces, a better compromise between bass performance and overall dimensionality may be achieved by combining a subwoofer (or two) with main speakers that are less than fully "full range." That said, before departing, Markowitz measured a flat response down to 23Hz with the VRCs in my room.

Moving on to assessments of other sonic parameters, the VRC's treble performance was unassailable. Manu Katché's cymbal work on *Neighborhood*, his first ECM album as a leader, was exquisite. A jazz drummer has so many artistic choices, and the Acoras reveal the depth of Katché's technical ability, taste, and imagination as he made musically informed decisions about which cymbal to use, how hard to strike it, and where on the plate to apply his drumstick. The burst of high-frequency energy that begins any harpsichord note, as with David Schrader's performances of Soler Sonatas for Cedille, is produced gracefully, and with soprano Diana Damrau's "Der Hölle Rache" from *The Magic Flute,* one can tell that there's actually a *person* behind those remarkably accurate and consistent high F's and not some high-F-producing machine.

Spatially, there's good front-to-back layering of orchestral sections and the lead singer is *right there* between the loudspeakers on countless pop recordings. Sounds can image outside the lateral boundaries of the actual speakers, if that's what the mixing engineer was going for. A related phenomenon is that VRCs will correctly scale different instruments/voices on the same recording. This is easily appreciated with chamber music where a modern piano accompanies a more diminutive solo voice—as examples, Dave Wilson's recording of the Brahms Violin Sonata No. 1 (Abel/Steinberg) or another Cedille release, more Brahms in the form of the two clarinet sonatas (McGill/Chien.) If the source holds this kind of information, the Acoras will pass it along.

The Acoras reveal the depth of Katché's technical ability, taste, and imagination.

In a real sense, Acora's positioning of the VRCs flies in the face of how loudspeaker manufacturers often develop customer loyalty and motivate repeat purchases. Usually, an elite brand will have several "lines" that are composed of models that get bigger and more expensive as one ascends. Potential buyers are told they should buy as much speaker as they need "for their room." Not Acora. "I did not want room size to be a constraint," Cora told me. "That was a huge undertaking. It would have been much easier to say, 'Oh, they're going to be for a big room;' that way, I wouldn't have had to worry about bass control. I could have left in a little bit of the [midbass] peak. Fighting to get rid of that peak, to keep it completely and totally flat, took me the longest time."

So, while it's true that Acora's smaller speakers are designed to work in smaller rooms, it is *not* true that the VRC has been conceived to work only in a bigger one. Additionally, Valerio Cora maintains that the VRC, a 4-ohm, 94.5dB-efficient loudspeaker, can be successfully driven by relatively modest amplification, making the big Acora a more realistic consideration for more audiophiles. I explored this possibility by powering the VRCs with a pair of Pass XA 60.8s, which output 120 watts into a 4-ohm load and, at $14,250, cost less than a fifth of the Tidal am-

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plifiers (which are rated at 580 watts into 4 ohms.) Analog cabling with the Pass electronics was Transparent Audio Gen 5 Ultra. I'd say that the Pass amps delivered 80% of what I heard with the Ferios monoblocks; this hobby has always been about the law of diminishing returns. There's a good chance you would not need to replace your amplifiers at the same time you acquired a pair of these granite heavyweights. An enthusiast's first Acora could potentially be his last— a VRC—the speaker becoming a valuable asset that stays in the family, rather than being traded in a few years later for something newer and flashier. "All of a sudden, you have a legacy product," suggested Isaac, who compared owning a VRC to having an exclusive watch."

A bit over-the-top? Perhaps. But stone is something that endures for millennia; consider Stonehenge or the Parthenon. These marvels of human engineering radiate an unyielding permanence. Valerio Coro likes to point out that his loudspeakers, the enclosures at least, won't change over time, like those made of wood or aluminum. "A material like this doesn't shrink, doesn't expand, doesn't care about humidity, doesn't care about heat, doesn't care about cold." Granite is the hardest natural stone there is, 6 to 8 on Moh's Scale of Mineral Hardness (diamond gets a 10). It's no surprise that granite finds application as countertops, tombstones, and monuments. There is something monumental about the VRC's presentation, both visually and sonically.

The Acora Acoustics VRC is the best loudspeaker I've had in my listening room. It could be the best speaker I've heard *anywhere*. It's certainly the heaviest and the most expensive—and it excels in every aspect of sonic consequence. It's also, sorry to say, not for me. Even at a typical industry accommodation price, it's beyond my pay grade and a decidedly impractical product for a reviewer, given the need to frequently move speakers in and out of his audio system. But five magical weeks of hearing the VRCs on a daily basis with all kinds of music convinced me that this loudspeaker is among the most elite transducers that a well-heeled audiophile can consider.

It's remarkable that other manufacturers that are members of this exclusive six-figure-per-pair club—MBL, Wilson, Magico, Rockport, Focal, Tidal, Burmester, and a few others—have all been around for 20 to 40 years. Acora has been in business for six. This meteoric rise is due to the hard work of its founder and the people he surrounds himself with, plus, of course, a uniquely conceived and high-performing range of products. It pains me to say so, but the sticker price could represent a good value. The VRC doesn't require *ne plus ultra* amplification to reveal its across-the-board merits and, while $218k is undeniably a lot of money, it's a lot less than the top models of the brands mentioned above will set you back. If you've got the means, the requisite space, and a powerful love of music, the Acora VRCs must be heard before you think about writing a check for one of those estimable alternatives. They are truly monumental. tas

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Aqua Acoustic Quality LinQ Network Interface, La Diva M2 CD Transport, and Formula xHD Rev.2 DAC

The Purist Approach to Digital

Robert Harley

Audio has a long history of abandoning certain technologies in the name of progress only to have those "antiquated" technologies find a following decades later. Vacuum tubes, LP records, belt-drive turntables, loudspeakers with paper-pulp cones—these are just a few examples of older technologies that have enjoyed a renaissance years after their putative obsolescence.

To that list we can add the R/2R ladder DAC. I explain this technology in the sidebar, but know that the R/2R DAC is the first and simplest conversion architecture. The R/2R DAC, which dates to the initial CD players of the early-to-mid 1980s, was abandoned decades ago as a technological dead end. But some listeners find that the technique has sonic merit, perhaps due to its simplicity. Consequently, R/2R DACs are being reimagined with modern sophisticated parts and design. Moreover, this simplest of all DACs is being coupled with another antediluvian technology—the analog low-pass filter in place of an oversampling digital filter. Think of this combination as the purist approach to digital-to-analog conversion.

There's no better example of this trend than the Formula DAC from Italy's Aqua Acoustic Quality. The DAC's conversion stage is based on an R/2R ladder architecture realized not with an inexpensive off-the-shelf chip, but with discrete resistors driven by a field-programable gate array (FPGA) running proprietary software, all within a very tweaky implementation. In this review we'll take a close look at the Formula and consider the renaissance of the R/2R ladder DAC and the non-oversampling filter. Joining the Formula DAC in this review are the company's LinQ Network Interface and La Diva M2 CD transport.

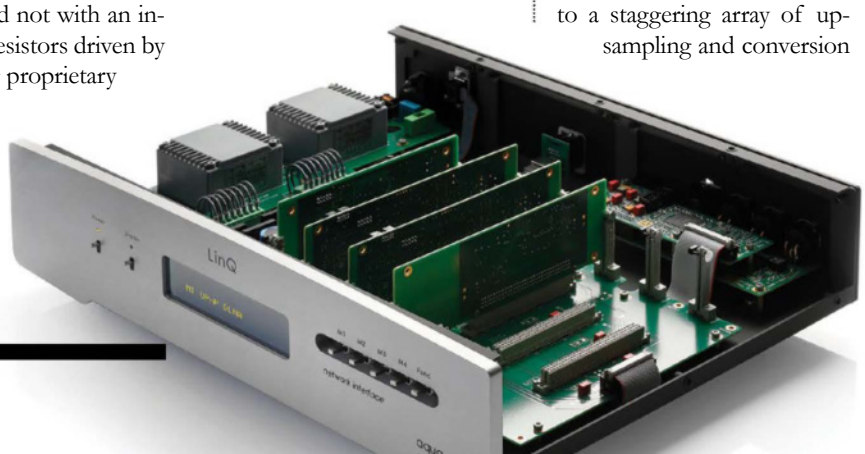
I was eager to explore the merits of these products as well as revisit an older DAC technology with which I had much experience in the late 1980s and throughout the 1990s. (I estimate that between 1989 and 2000, I reviewed about 100 DACs and CD players.) In addition, the Formula, LinQ, and La Diva M2 are packed with innovative design techniques rather than being just more "me-too" products.

The three components, all hand-made in Milan, Italy, are very nicely built but with casework that eschews the lavish execution that drives up a product's price. Consequently, I thought that the prices of these products were eminently reasonable considering the technology inside—$17,600 for the DAC, $6500–$7850 for the LinQ (depending on configuration), and $9800 for the La Diva CD transport. The company also offers two lower-priced DACs.

LinQ Network Interface

The LinQ connects to the internet and allows you to stream music to the DAC. It is unlike any other streamer I know of in that its modular design allows you to configure the hardware according to your needs as well as upgrade to future technologies as they become available. This upgradability is realized with four slots on a motherboard, each of which can accept a streaming module or renderer. Each streaming module is powered by its own power supply.

The LinQ includes the third-party software HQPlayer embedded in one of the modules. HQPlayer is a high-quality music player that typically runs on a PC connected to the network but here runs internally on one of the LinQ's modules. The software handles all the audio signal processing, which ranges from simply passing the signal to the output with the highest possible quality to a staggering array of upsampling and conversion



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Specs & Pricing

LinQ Network Interface
Type: Modular multi-processor network streamer
Input: RJ-45 Ethernet
Outputs: I²S on RJ-45 jack; dual-wire AES/EBU; AES/EBU; SPDIF on BNC; SPDIF on RCA
Display: 2x20 OLED
Dimensions: 450mm x 100mm x 370mm
Weight: 9kg
Price: $6500–$7850, depending on configuration

La Diva 2 CD Transport
Type: Top-loading CD transport
Outputs: I²S on RJ-45 jack; SPDIF on BNC; SPDIF on RCA; AES/EBU, AT&T ST-type glass fiber; word clock on BNC jack
Dimensions: 450mm x 100mm x 370mm
Weight: 10kg
Price: $9800

Formula xHD Rev.2 DAC
Type: Digital-to-analog converter
Formats: PCM up to 384kHz; native DSD to DSD512
Conversion: R/2R ladder DAC, no digital filtering, custom FPGA processor
Inputs: I²S on RJ-45 jack; dual-wire AES/EBU; AES/EBU; SPDIF on BNC; SPDIF on RCA; USB Type B
Outputs: Balanced on XLR jacks, unbalanced on RCA jacks
Dimensions: 450mm x 100mm x 370mm
Weight: 9kg
Price: $17,600

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Cables: AudioQuest Dragon interconnects, AudioQuest Dragon Zero and Dragon Bass loudspeaker cables
Grounding: Shunyata Altaira grounding system
Accessories: The Chord Company GroundArray noise reduction
Acoustics: Acoustic Geometry Pro Room Pack 12, ASC 16" Round Tube Traps
Room: Purpose-built; Acoustic Sciences Corporation Iso-Wall System

options. In the LinQ, the embedded HQPlayer works in conjunction with Roon; HQPlayer handles the audio signal, while Roon functions only as the music-management interface. The presence of the HQPlayer is transparent to the user once the LinQ is set up. The HQPlayer license is incorporated in the LinQ's module, saving you the purchase cost as well as obviating the need to hassle with downloading and configuring the software to work with the LinQ and Roon. You'll still need to run the Roon Server (formerly called "Roon Core") on a computer connected to the network. To recap, Roon Server is the part of Roon that does all the heavy lifting behind the scenes. Your tablet or phone runs only the interface ("Roon Remote") controlling the Roon Server. If you're not a Roon user, the LinQ's modular nature allows you to order the unit with other plug-in modules including UPnP, Squeezelite, and Tidal Connect. Of course, you can change the configuration at any time simply by adding or swapping modules.

The LinQ offers all the conventional digital outputs you'd expect on a streamer (AES/EBU, SPDIF, etc.) but also provides its digital output signal on an I²S port via an RJ-45 jack. I²S (pronounced "I squared S") is a bi-directional interface protocol originally developed for internal signals in CD players. It is a much better interface than AES/EBU, SPDIDF, optical, or USB (especially USB) for several reasons, most notably for its bi-directional ability. AES/EBU and SPDIF are uni-directional; a digital signal representing the audio data is embedded within the clock, with one-way transmission from the source to the DAC. The DAC then must generate a new clock based on the incoming clock, a process that, even when implemented with great precision, introduces timing errors (jitter) in that clock. By contrast, in a source and DAC connected via I²S, the DAC becomes the master clock to which the source must lock. The DAC generates its own high-precision clock that serves as the timing reference for the critical D/A conversion rather than a jittered clock transmitted down the interface. In addition, the clock and data travel on separate lines.

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If you use the LinQ with a DAC lacking I²S input, the AES/EBU and SPDIF outputs are no afterthoughts; they have been implemented with a custom FPGA for improved performance.

Everything about the LinQ's design is tweaky, from the separate power supplies for each module, to the custom-built internal LAN switch, to the galvanic isolation between sub-sections, to the FPGA digital output driver, to the modular construction, to the I²S output, to the inclusion of the HQPlayer software. Clearly, this is a machine built for sound quality.

La Diva M2 CD Transport

The Compact Disc is still an important format in many parts of the world. Moreover, some listeners claim that physical media sounds better than streaming (see Jonathan Valin's review of the Kalista DreamPlay XC in Issue 345, for example). For those who want to spin silver discs, Aqua Acoustic Quality offers the La Diva M2, a top-loading transport. Although the La Diva M2 shares a name with its predecessor (La Diva), the La Diva M2 is no mere refresh; it is entirely new in every way. The transport mechanism is a modified Philips CD Pro-8S controlled by a digital servo system. La Diva is built with the same level of innovation as the other products, including galvanic isolation between subsections, a modular multi-board system to allow future upgrades, multi-stage voltage regulation, a mechanically isolated subchassis for the transport mechanism, and a FPGA running proprietary code to generate the output signals. These outputs not only include the usual formats but also AT&T ST-Type optical, an interface popular in the early 1990s but largely abandoned. La Diva also offers I²S, the interface of choice if you have a DAC with an I²S input.

Unusually, the transport controls are toggle switches rather than buttons. A large display shows track information. A metal door on the top pane slides open to reveal the transport mechanism. After placing a CD on the spindle, a small magnetic clamp secures the disc. A hefty and comprehensive remote control is included.

Formula xHD Rev.2 DAC

Now we come to the Formula DAC (actually, the Formula xHD Rev.2 DAC, but we'll call it simply the Formula). The Formula features a custom 24-bit digital-to-analog conversion circuit based on an R/2R ladder architecture and built with discrete components rather than an off-the-shelf chip. But before we get into that, let's look at the Formula in practice.

The DAC is housed in the same-sized chassis as the LinQ and La Diva M2. The front panel has no display, only LEDs that indicate the sample frequency being decoded, the input selected, power, and mute. All controls (power, mute, input) are toggle switches. The rear panel houses six input jacks, which include the usual types as well as two I²S inputs. The analog output appears on both RCA and XLR jacks. The DAC can decode PCM up to 768kHz and DSD up to DSD512.

Before the modern interest in R/2R ladder DACs, an R/2R DAC's entire circuitry was incorporated in a chip. The "ladder" is a series of resistors that convert the digital input code into an analog value. Each "rung" on the ladder is formed by a resistor. A 16-bit converter has 16 of these "rungs." These resistors—the precision of which is crucial—were created by a photolithographic process on a single piece of silicon along with the rest of the DAC circuitry. Consequently, the resistors exhibited wide tolerances in their resistance values, introducing linearity error in the analog output signal. Linearity error is a deviation between what the analog output voltage should be for a given digital input code and what it actually is (see the sidebar for details).

Incorporating the entire DAC circuitry on a chip and accepting the resulting linearity error was unavoidable given the technology of the day and the demand for mass-market-priced CD players. But what if a designer wasn't bound by these constraints and was free to create a ladder DAC not from integrated circuits but from high-precision discrete resistors in a no-compromise implementation? That's exactly what Aqua Acoustic Quality has done in the Formula. The company calls its DAC circuit Optologic, and it starts with processing the digital datastream with a field-programmable gate array. An FPGA is an integrated circuit that can be thought of as a blank canvas that is software-driven to perform a wide range of functions. Aqua Acoustic Quality has written this software specifically for the Formula, creating a pair of datastreams (per channel) from the FPGA that will drive an array of discrete high-precision resistors in the DAC's 24-bit ladder.

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R/R2 Ladder DACs—How They Work

The following text in quotes is excerpted from my book The Complete Guide to High-End Audio, sixth edition.

"**A COMMON TYPE OF DAC** is the multibit 'ladder' or 'R/2R' DAC, both names describing the same operating principle. Multibit ladder DACs have 'rungs' of resistors, each rung corresponding to one bit in the digital code. A 16-bit DAC will thus have 16 resistor rungs, which allow 65,536 (2^{16}) possible input codes. These 16 bits form one sample, a digital representation of the audio signal's amplitude at the moment the sample is taken. Each sample is input to the ladder (one bit per rung), which converts the digital code to an analog value, with the process repeated 44,100 times per second (in a non-oversampling, 44.kHz, 16-bit system).

"The effective resistor value of each rung is twice the value of the adjacent resistor, thus the name 'R/2R' ladder. (In practice, only two resistor values are used, but their configuration results in an effective doubling of resistance in each successive rung.) The input data act as switches on the rungs; a binary '1' closes the switch at that particular bit and allows current to flow through the resistor, while a binary '0' opens the switch and no current flows. The DAC's output current is thus proportional to the audio signal's amplitude represented by the digital input code.

"Because each rung has an effective resistor value half that of the adjacent rung, the ladder rung and the resistor precision determine how much 'weight' the bit has by determining how much current flows through the switch. The least significant bit (LSB) has the lowest weight, the most significant bit (MSB) the highest. Each bit upward from the LSB should produce a precise doubling of current, in the binary progression 1, 2, 4, 8, 16, 32, 64, 128, 256, and so on, up to 524,288 in a 20-bit DAC. The LSB has a value of 1, the MSB a value of 524,288 (in a 20-bit DAC). When the MSB value of 524,288 is combined with the 19 lower bits, a 20-bit DAC can accommodate up to 1,048,576 input codes.

"The precision of these resistor values is crucial: Any deviation from a doubling of resistance causes that bit to have a higher or lower value than it should. These so-called 'bit-weighting errors' result in poor linearity. That is, the analog output level doesn't precisely track the digital input code. A perfectly linear DAC will produce an analog output at exactly the level represented by the digital input. For example, if the DAC is driven by the code representing a –90dB dithered sinewave, the analog output should be exactly 90dB below full scale. A nonlinear DAC would produce an output level of perhaps –93dB or –86dB. Linearity errors generally occur at very low signal levels."

Many early CD players and DACs featured the Philips TDA 1541 chip, which was notorious for its linearity errors. The company offered several grades based on their linearity performance. The "Relaxed" (TDA1541R) version had a linearity error of 2 least-significant bits; the standard version had a linearity error of 1 LSB, and the "S" or "Select" (stamped with a crown symbol) had the lowest linearity error.

A significant improvement of the R/2R ladder DAC was invented by Burr-Brown in 1992, called the "sign-magnitude" DAC, the architecture used in the Formula. In this scheme, one of the bits is used to indicate whether the sum of the current at the ladder output is positive or negative. The sign-magnitude bit toggles from one to zero, or from zero to one, at the analog waveform's zero-crossing point. This technique improves low-level resolution. You can also think of sign magnitude as roughly analogous to a push-pull amplifier; negative and positive signals are handled by separate circuits working together. The technique greatly improves low-level linearity but requires double the resistor-ladder circuitry. As mentioned, the Formula DAC has four separate DACs, two for each channel.

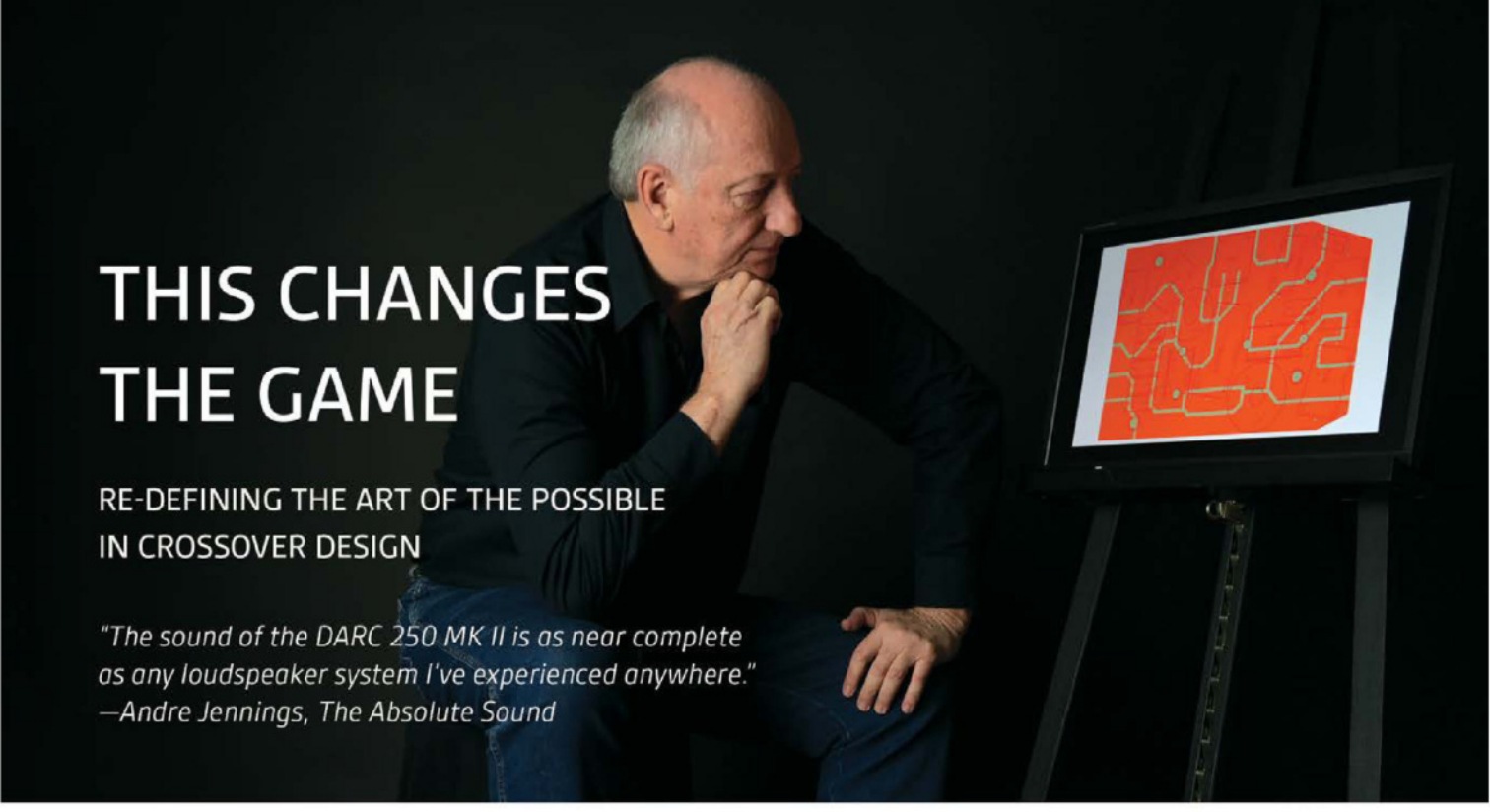
All the chip manufacturers abandoned R/2R ladder DACs long ago as a technological dead-end, largely because the architecture's resolution was limited, and linearity was dependent on the precision of the resistor values.

But by using very high-precision discrete metal-film resistors in the DAC ladder, Aqua has eliminated the linearity error that plagued chip-based DACs.

The Formula DAC uses a technique called "sign magnitude" that was invented by Burr-Brown in 1992 and led to the near-instant adoption of the Burr-Brown PCM1704 chip by virtually every high-end manufacturer, starting around 1993. Sign-magnitude conversion is a technique that improves the performance of the R/2R ladder DAC as explained in the sidebar. But sign-magnitude conversion requires two separate ladder DACs per channel, which in the Formula are composed of very tiny, discrete, high-precision, metal-film surface-mount resistors. I popped the Formula DAC's top panel for a peek and saw four separate identical DAC boards, each with rows of tiny resistors. Until recently, resistors of this size and precision simply didn't exist.

A digital-to-analog converter requires a filter to remove unwanted energy above half the sample rate. With R/2R ladder DACs, this filtering is typically performed in the digital domain with an oversampling digital filter. The off-the-shelf digital filters in the 1980s and 1990s were typically 8x oversampling types. That is, they increased the sampling frequency by eight times before D-A conversion. No new information is created by oversampling; the technique simply shifts the spurious energy higher in frequency where it is more easily filtered.

Aqua Acoustic Quality has taken the opposite approach, eschewing the digital filter entirely in favor of a simple analog low-pass filter *after* D-A conversion. I describe the advantages and disadvantages of digital filters in the sidebar, but for now consider this: Aqua's approach is the only way that the bits created by the analog-to-digital converter when the recording was made are ex-



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actly the same bits that are converted to analog by the DAC. All other methods process and manipulate the signal so that the bits being converted to analog are not exactly the same bits that were created by the analog-to-digital converter. Removing the digital filter has other benefits as described in the sidebar.

While looking inside the chassis, I saw how the Formula was built with a modular construction, allowing any of the sub-sections to be upgraded in the future. Two separate power transformers are dedicated to the analog and digital sections respectively, and except for the main electrolytic filter capacitors, all other caps are expensive esoteric types. The voltage regulators are all custom discrete circuits, not noisier IC-based regulators. Much effort went into isolating the subsections from each other to prevent noise coupling, including galvanic isolation realized with opto-couplers between the FPGA and DAC. This optical coupling led to the company naming their DAC conversion technology "Optologic."

The output stage is single ended, with the balanced output created with a transformer. The output amplifier is based on a discrete circuit realized with JFETs and bi-polar transistors in a direct-coupled circuit. Overall, the Formula incorporates a host of design techniques and parts that signal its intention as a sound-quality-first product.

Listening

In one of the sidebars, I draw a broad conceptual analogy between R/2R ladder DACs and single-ended triode amplification. Both have the advantage of simplicity and very little signal manipulation, along with a reputation for delivering good sound despite their markedly inferior technical performance. I formed that analogy before listening to the Aqua products.

That analogy turned out to be surprisingly prescient in many ways. That's because the Aqua stack has an unmistakable sonic characteristic that is very much like that of an SET amplifier—a directness of expression, a sense of vividness and presence through the midband, a naturalness of timbre, and the sense of a scrim being removed between you and the music. I heard this quality seconds into the first track; it's not something you have to listen for attentively. Vocals simply had an immediacy and palpability, not just in the feeling of physical presence but also in how the Aqua system seemed to reveal nuances of expression and subtle inflections that more powerfully conveyed a lyric's meaning, as well as the rich textural details that revealed the harmonic complexity and beauty of a vocalist's timbre. The Aqua system fostered an immediate intimacy with the singer, as though she was revealing some part of herself only to you—and for the first time. In this way, the Aqua sounds different from other digital. The Aqua system sounds organic and natural, like tasting a lovingly grown tomato just picked from a garden compared to a store-bought tomato.

I had this impression over a wide range of performers and styles, from Samara Joy's readings from the great American songbook to Madeleine Peyroux's rendition of Leonard Cohen's "Dance Me to the End of Love," to Diana Krall, to, well, just about everyone. I wouldn't call the Aqua system

R/2R Ladder DACs: The Single-Ended Triodes of Digital Conversion

THE R/2R LADDER DAC'S TECHNICAL APPEAL is its simplicity; think of it as the single-ended triode of digital converters. Just as the SET amplifier is realized with only a few parts, the R2/R ladder DAC's operation involves very little digital signal processing or manipulation. It directly converts each audio sample (the sample is a 16, 20, or 24-bit "word" that represents the original analog signal's amplitude when the sample was taken) directly; each bit in the word opens or closes a switch on a resistor ladder. The currents through all the ladder rungs are summed, with that value closely approximating the original analog signal's amplitude. This process occurs 44,100 times per second when decoding 44.1kHz datastreams.

By contrast, today's modern delta-sigma converters rely on extensive digital signal processing. A full description of delta-sigma DACs is beyond the scope of this review, but in short, a delta-sigma modulator first massively increases the sampling frequency but lowers the amplitude resolution, applies noise shaping, and then decimates the output word length. This technique has its advantages (such as superb low-level linearity) but introduces a considerable amount of digital processing. The contrast between an R/2R ladder DAC's simplicity and the delta-sigma DAC's complexity is stark.

The conceptual analogy continues with the fact that R/2R ladder DACs have demonstrably worse technical performance than today's sophisticated delta-sigma converters in every performance parameter, just as SET amplifiers have laughably poor measured performance compared with modern transistor amplifiers. But just as there are adherents to the SET approach, some believe that the R/2R ladder DAC has a more organic, engaging, and musical sound despite its poorer technical performance.

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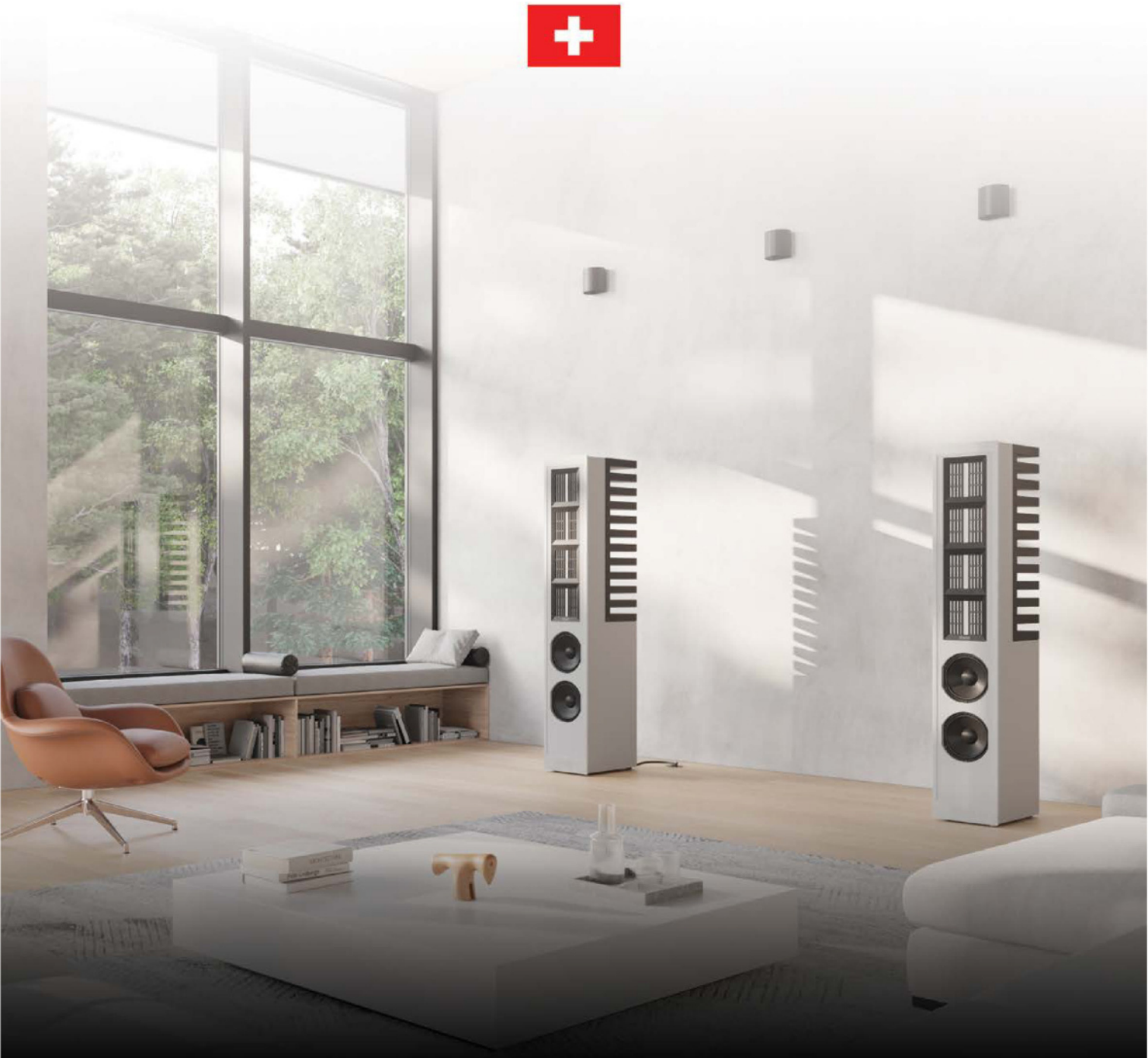

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overly forward through the midrange, a characteristic that can emphasize vocals. Rather, the midrange rendering was more subtle, richly detailed, and sophisticated. It was aided by a tangible bloom around image outlines, the vocalist existing in three-dimensional space with air around and behind the image. It was the kind of presentation that can't help but draw you immediately into the performance. It reminded me of hearing vocals from a live microphone feed—high praise, indeed.

The textural realism heard on vocals extended to other instruments, which had a naturalness of timbre that eludes most digital. There was simply an immediacy and sense of life that were the antitheses of dark, closed-in, veiled, or thick. This vibrant quality gave the sound an "illuminated from within" character (Jonathan Valin's evocative phrase) that produced a close approximation of instruments and voices appearing in the listening room. Listen to the gentle trumpet solo on Melody Gardot's "If You Love Me" from her recent album *Sunset in the Blue*. The trumpet had a burnished golden character that one hears from the live instrument, almost sounding like a flugelhorn. The trumpet's image was surrounded by a halo of air that expanded with each note's dynamic envelope, further adding to the sense of realism.

The Aqua's openness and air were especially evident, and welcome, on tracks with multiple Latin percussion instruments; music always sounded alive and upbeat. Try the beautiful composition "Ella Nunca Tiene Una Ventana" from Jimmy Haslip's outstanding release *Red Heat* or "Corazón Espinado" from Carlos Santana's *Supernatural*. The layers of Latin percussion were beautifully rendered in texture, transient fidelity, and spatial realism.

The tonal balance leaned slightly toward openness and transparency, adding a touch of upper harmonics to harmonic-rich instruments such as saxophone and slightly emphasizing vocal sibilance. The upper-midrange to lower-treble region had a bit of extra life and sparkle, which contributed to my impression of openness and immediacy. Although lively sounding, I wouldn't characterize the sound as bright. Still, if you have bright speakers or electronics, the Aqua products won't tilt the system back toward neutral.

The Aqua stack's bass reproduction was fabulous—deep, powerful, and extended without a hint of bloat or thickness.

The Aqua stack's bass reproduction was fabulous—deep, powerful, and extended without a hint of bloat or thickness. It managed to sound full and weighty yet still be light on its feet dynamically. Big bass-drum whacks in orchestral music (*The Arnold Overtures* on Reference Recordings in 176/24) were reproduced with startling impact. But the bass quality went beyond the usual checklist; it had a density of tone color and warmth rarely heard from digital. Acoustic bass simply had a richness of timbre that conveyed a sense of realism, with resolution of the fine detail that transforms the reproduced sound from low-frequency energy to a convincing illusion of the instrument appearing between the loudspeakers. I also enjoyed the way the Aqua stack beautifully conveyed music's rhythmic flow, whether the gentle loping of Neil Young's "Harvest Moon," or the incomparable swinging of Ray Brown on *Duke's Big Four*, or the high-octane fusion bass line on "Electric Man" from Billy Cobham's *Drums and Voice, Vol. 3*. No matter the style of music, the Aqua sys-

Removing the Digital Filter

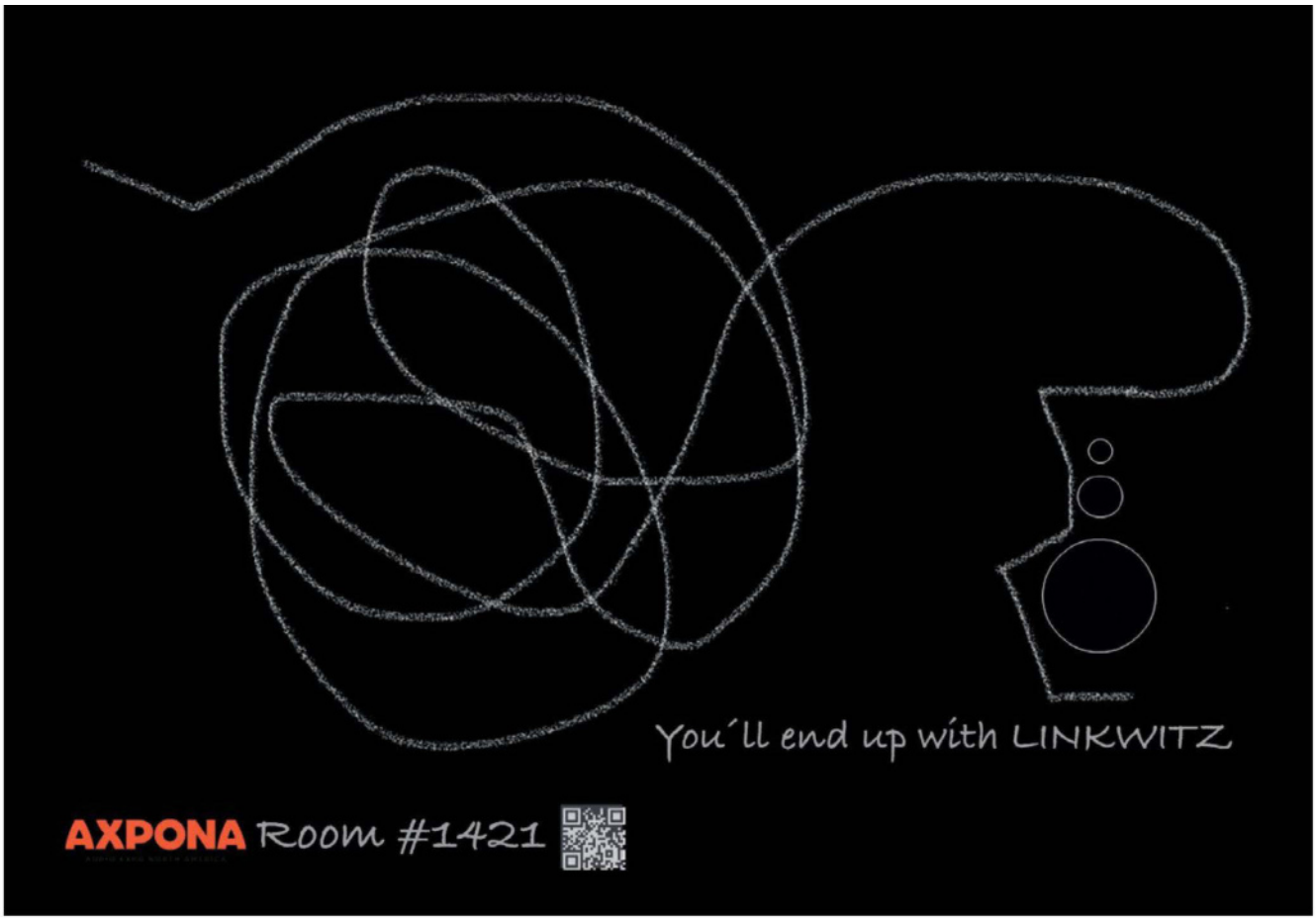
EVERY DIGITAL-TO-ANALOG CONVERTER must have a low-pass filter to remove unwanted energy above half the sampling frequency. This filtering is virtually always performed in the digital domain before digital-to-analog conversion. The digital filter increases the sampling frequency, typically by eight times ("8x oversampling") so that the spurious energy is shifted higher in frequency, allowing a higher filter cutoff frequency and a gentler slope. This description is of filters for R/2R ladder DACs, not modern delta-sigma types.

Aqua has dispensed with the digital filter, opting instead for a steep analog filter *after* D-A conversion. The company believes that the problems introduced by digital filters outweigh their benefits. One of these problems is that digital filters "ring" when a signal is input to them. That is, they spread out the signal's energy over time, distorting the music's transient nature and adding hardness and glare to timbres. No digital filter equals no time smearing of musical transients.

Oversampling digital filters are also prone to a phenomenon called "intersample overs." This occurs when a recording has been made or mastered at a very high level and some of the peaks clip. The oversampling filter creates sample points between the actual samples, some of which can exceed full-scale (0dBFS). As a result, the reconstructed analog waveform exceeds 0dB, introducing a series of tiny distortion spikes at the intersample overs. Again, no digital filter equals no distortion from intersample overs.

The downside of removing the digital filter is that the design must add an analog low-pass filter after D/A conversion that has a very steep slope. The filter should ideally exhibit no attenuation at 20kHz and 90dB or more attention before 22.05kHz, which is half the sampling frequency (for 44.1kHz). Such steep analog filters introduce phase shift and are difficult to implement, which is why they were abandoned long ago in favor of upsampling digital filters.

But, as mentioned in the review body, Aqua's approach of an analog filter and conversion with an R/2R ladder DAC is the only architecture that provides conversion of an unaltered bitstream—the samples converted to analog are the same samples created by the A/D converter when the recording was made. No other conversion technique can make that claim.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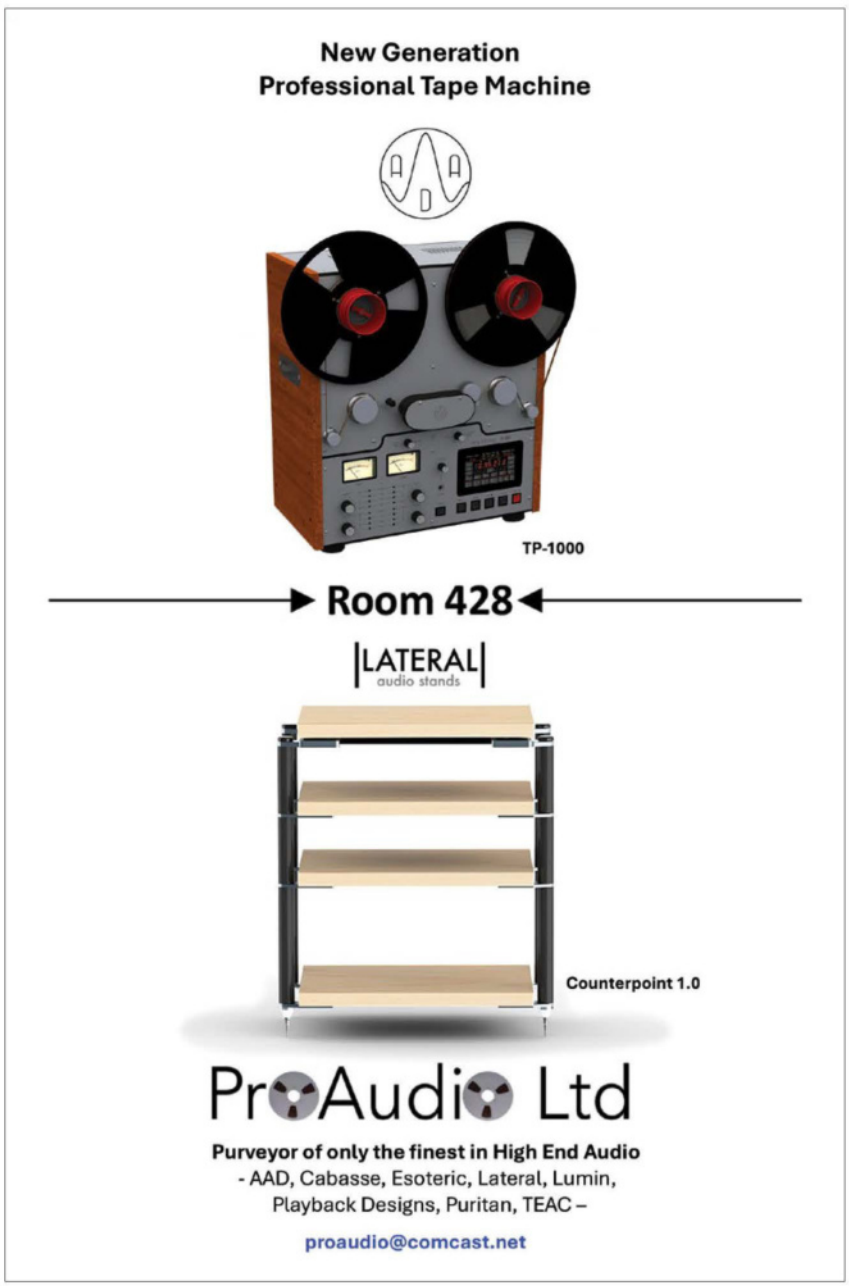
tem's combination of bass weight, dynamic agility, pitch definition, and most importantly, timbral realism, never failed to deliver musical satisfaction.

Finally, I compared the sound of CDs with the same tracks streamed from Qobuz. It's difficult to draw conclusions from such comparisons because one doesn't know the provenance of the streamed file, specifically if it is identical to the file used to make the CD. Nonetheless, I found a few examples

If you're in the market for a digital front end, these exceptional products from Italy should be on your shortlist.

that appear to be from the same master. In all cases, the CD gets the nod for its slightly more natural and relaxed sound. The streamed file sounded just a bit drier, flatter, and with a very slight added glare in the upper midrange. The bass on the CD was also more tuneful and propulsive. Overall, the difference wasn't significant, particularly in relation to streaming's massive convenience factor. Plus, with streaming you can spend more time listening and less time looking for and loading CDs. The difference wasn't enough to make me go back to buying CDs.



Conclusion

The Aqua Acoustic Quality LinQ Network Player, Diva 2 CD Transport, and Formula DAC possess a naturalness and realism that make them sound different, and in many ways better, than other digital. I speculate that these qualities are largely the result of the Formula DAC's R/2R ladder architecture and analog filter in place of an oversampling digital filter—an architecture that was supplanted decades ago by delta-sigma DACs and powerful DSP. The Aqua products make a convincing argument that the simple R/2R ladder DAC, coupled with a non-oversampling filter, has many sonic merits despite its theoretical inferiority to modern conversion methods. I'm reminded of the great audio aphorism: "An audio signal is like a fine pastry; the less it is handled the better the result."

The Aqua stack's achievement is all the more remarkable considering the products' reasonable prices. The Formula DAC, at under $20k, is a great bargain. It meshed synergistically with the LinQ and Diva 2, particularly because the three products can be connected via the superior I²S digital interface. I like the fact that the build budget went into parts that make a sonic difference, not elaborate chassis work. Moreover, the products' design is very clever, with enlightened techniques and parts that improve sound quality while not costing a fortune. These products were designed not by throwing money at them but through innovative thinking.

If you're in the market for a digital front end, these exceptional products from Italy should be on your shortlist. They made an indelible impression on me, and I suspect that they will on you, as well. tas

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dCS Lina Master Clock

Timing is Everything

Neil Gader

I reviewed the original dCS Bartók Network DAC in Issue 300. Its performance proved revelatory to my ears and my soul—so much so that when it came time for the return of my review sample, I took a deep breath and sprang for the purchase. But little did I know what was in store. True, I was already aware that dCS stands behind its creations like few companies out there, that it mandates long product cycles, and that through periodic over-the-air software updates wards off the endemic obsolescence that dogs digital hardware. But then, last year, dCS announced Apex—a collection of major firmware and hardware advancements (necessitating a return to the U.S. distributor) that first appeared in dCS flagship DAC, Rossini, and hyper-flagship Vivaldi. It's really no exaggeration to state that Apex stunned, to the point of almost completely reinventing Bartók (which I wrote about in Issue 344).

However, once an audiophile, always an audiophile. And so, when John Giolas, VP of dCS Sales, mentioned an external clock upgrade, my mind began ticking. I started wondering if there was something more. Which brings me to the Lina Master Clock, a companion to dCS' three-model entry-level Lina Series, which includes a network DAC and headphone amp. It joins the clock models dedicated to top-tier Rossini and Vivaldi DACs. Like all dCS master clocks, the Lina Master Clock is a standalone device with one purpose: to deliver a precise and reliable clocking reference signal. Put another way, during the transition between digital and analog, it is responsible for making sure the digital samples are converted at precisely the correct time. Lina is a twin-clock, temperature-controlled, dual-crystal design with clocking for all audio sample base rates (44.1kHz and 48kHz). According to dCS, "these two synchronizing signals are presented (via independent BNC cables) to all of the elements in a digital audio system, and our DACs intelligently know the sample rate they're being asked to convert, which of the clocks to pay attention to, and are therefore [able] to keep everything synchronized correctly."

Further, the Lina Master Clock uses the same core technologies as Rossini and Vivaldi. This includes dCS' unique phase-locked loop system, which synchronizes clock frequencies. It was designed to work in tandem with a DAC's internal clock to minimize jitter and reduce the risk of clocking inconsistencies or errors. For clarification, the use of a master clock does not, in and of itself, replace the internal clock inside the DAC, in my case the Bartók Apex. It's not a redundancy. The DAC's internal clock still dictates when samples are converted, and the DAC still benefits from having a high-quality clock close to the DAC circuitry. It simply adjusts its frequency over time to match that of the master clock, essentially acting as a stable reference for the DAC.

Are there other key advantages to the use of a dedicated master clock? Yes. Being outboard, it operates on its own separate circuit board and is furnished with its own dedicated power attributes, which reduce the risk of crosstalk (electromagnetic interference), power interference, and disturbance due to physical movement or vibration. It also adds stability as it helps to ensure that clocking remains consistent throughout a system's lifespan. (Note that for readers interested in a deeper dive into clocks, check out Editor-in-Chief Robert Harley's discussion of clock technology found in the Esoteric G-Orb Rubidium Master Clock Generator [Issue 180] and the dCS Puccini CD/SACD player with U-Clock [Issue 200].)

Visually, its form factor mirrors the small footprint profile of the Lina DAC. My particular sample was in a machined black aluminum (silver is also available) A small pinlight operated by a hidden pushbutton at the lower edge of the front panel indicates power or standby mode. The back panel is simplicity itself with a pair of word-clock outputs (44.1kHz and 48kHz), plus an outlet for the supplied power cord and "Powerlink" for communication between Lina models.

I listened to Lina using two different digital sources—the Bartók Apex and my tried-and-true Puccini CD/SACD player. (As an aside, for reasons I can't explain, Lina's effects were more strongly felt when connected to the Puccini player.) Digital interconnect cabling, I soon discovered, made a significant difference—and special thanks to Shunyata for the loan of a pair of its Sigma V2 BNC clock cables. The quality and transparency of these

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Specs & Pricing

Grade 1 Master Clock with oven-controlled crystal oscillators
Word clock outputs: Two independently buffered TTL-compatible outputs on 75-ohm BNC connectors—output 1 fixed 44.1; output 2 fixed 48kHz
Dimensions: 8.7" x 4.8" x 13.3"
Weight: 15.4 lbs.
Price: $7700

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wires assured me that I was taking the full measure of Lina's capabilities.

Beyond trade show demos, I'd never had hands-on experience with a master clock. It turned into one of the more challenging and quirky adventures in recent high-end memory. It revealed its charms very slowly over protracted listening and in unexpected ways. If I came into the review thinking Bartók Apex didn't have anything further to give, I was wrong.

While the overall effect was subtle, music often took on greater presence and spaciousness; yet, at the same time, it seemed paradoxically more relaxed. During "Let's Get Lost," trumpeter Terence Blanchard's duet with Diana Krall, there was a more finely wrought sense of continuousness across the stage, complete with more complex dimensional cues and atmospherics, a greater connectedness among musicians, and an increased sensitivity to the physical air and space in and around each player. There was also an utter lack of smearing at very low levels, specifically with soft percussion like the rattle and sudden pop off the skin of an upstage tambourine, or the gentle chime of a mark tree, or the shimmer of ride cymbals during Brubeck's "Take Five" from the classic *Time Out*. Lina seemed to reinforce everything that the Bartók Apex was about, delicately underlining and buttressing its signature sonics. These attributes might seem elusive at first, but once observed and keyed upon, your ear begins to rely on them being present—and misses them if they're removed.

Sonic gains didn't necessarily appear on every piece of music. In this, I was reminded of a Lina white paper where dCS Technical Director Andy McHarg said: "Measurements-wise, it's a pretty subtle effect…but we've been able to clearly demonstrate the audible effects of adding a clock for over 30 years." So, indeed, its impact varied—at times subliminal, sometimes elusive to describe, but palpable. As for the subliminal, that was exactly what occurred as I listened to Nirvana's "Something in the Way." With the Lina, Kurt Cobain's boxed-in studio vocal was heard with an added layer of weight—a sense of a slightly larger volume of air pushing forward and back-stopping the music. When the band kicks in during the chorus, there's a heaviness to the moment laden with greater presence and realism. The density of reverberant space was thicker and deeper, almost as if a bass mode in the studio had been triggered.

The clock was at its most incisive when given high-resolution material to work with, observations most keenly felt during complex orchestral recordings, acoustic jazz, or chamber. A prime example would be a wonderful version of Holst's *The Planets* with William Steinberg conducting the BSO. (Colleague Paul Seydor introduced me to this one. Truth be told, I'm still partial to the Andre Previn, London Symphony version from 1973 also available on Tidal.) That said, Paul's accolades were spot-on. When I cued up "Jupiter" (a recurring theme in the movie *The Right Stuff*), my system seemed to achieve an openness and bloom that were new to my ears, even after the many years I've heard this track. Section layering also seemed affected. Players were more precisely positioned across the stage; lateral and front-to-back cues more expressly defined.

Solo piano recordings remain my constant companions in nearly every evaluation that I've written. In this instance, during Glinka's "The Lark" (Evgeny Kissin at the concert grand), I found a livelier sense of air and space coming off each note—a thicker harmonic *aura* that seemed to wrap each note or chord. During Pat Metheny's duet cover of the Jimmy Webb tune "The Moon is a Harsh Mistress," Charlie Haden's standup bass was reproduced with a steadier balance between pitch and dark soundboard resonance. It's a textural shift, both softer and more relaxed, and slightly more immersive.

As a Bartók owner, I was curious why dCS had not dedicated a master clock exclusively to that model. Evidently, there were thoughts along those lines, but dCS' brass concluded that Lina's Master Clock not only fills that void but also has all-purpose appeal outside the dCS ecosystem, matching up with virtually any quality DAC with the proper BNC clock inputs.

Note to owners of first generation, non-Apex Bartóks with the upgrade bug. Should you spring for Apex (upgrade cost, $9000) or Lina? In my view, the Apex upgrade is at the top of the list. Let Apex settle into your system for a while and acclimate to its mind-bending performance bonus. Then, you might turn to considering the Lina Master Clock

Frankly, I didn't think anything could improve Bartók after the Apex upgrade. Nonetheless, the Lina Master Clock turned out to be a component whose understated rewards are not to be taken lightly. Without question, the Bartók Apex remains a state-of-the-art device in its segment, with or without Lina. Still, the Lina's gentle virtues have a way of sneaking up on you. Ultimately, every audiophile must decide for himself whether he "clocks" a discernable and musical difference. Naturally, a lengthy audition remains the best path to turn a *maybe* into a *must*. Your own ears will take you the rest of the way. tas

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Gauder Akustik DARC 250 Mk II Loudspeaker

Dynamic, Articulate, Resolving, and Coherent

Andre Jennings

My first listening experience with a Gauder Akustik loudspeaker was a little over nine years ago at CES in 2015. That speaker was the Berlina RC 9. The RC 9 is a reference-quality 4-way system utilizing a ¾" pure-diamond tweeter, a 2" pure-diamond midrange driver, a 7" ceramic lower-midrange driver, and three 7" ceramic woofers paralleled in a bass-reflex enclosure. The speaker incorporated impressive and extremely steep 60dB/octave crossovers on all drivers, producing sound that was attention grabbing. So much so that I requested a review pair for TAS. That review was published in Issue 262 (you can also read it online at theabsolutesound.com/articles/gauder-akustik-berlina-rc-9).

Fast-forwarding to April 2023, I had the opportunity to audition another Gauder Akustik speaker. This time, the venue was AXPONA, and the item was from Gauder's new DARC Series: the 3-way DARC 200. The sound was, again, attention grabbing—enough to earn a Most Coveted Product mention in my show report. That experience stayed with me, and after talking with the manufacturer and distributor (Axiss Audio USA), I selected one of the DARC Series loudspeakers for review. Given my experience with the 4-way Berlina RC 9 (now discontinued), I chose its successor in the DARC line.

The DARC 250 Mk II is Gauder Akustik's only DARC 4-way loudspeaker, currently enjoying flagship status in the series (by the time this review is in print, that may have changed). Compared to the RC 9, everything is newly designed: crossovers, cabinet, drivers, and other components. What remains from a general perspective revolves around the DARC 250 Mk II being a 4-way with 60dB/octave crossover slopes on all drivers. The speaker system utilizes a ¾" pure-diamond tweeter, a 2" pure-diamond high-midrange driver, a 7" ceramic lower-midrange driver, and two 9" back-coated aluminum woofers paralleled in a bass-reflex enclosure. The speaker enclosure is made using stacked aluminum ribs (more on this later).

If you've read the Berlina RC 9 review, many of the details listed below will sound familiar. The DARC 250 Mk II, like all Gauder Akustik loudspeakers, takes a physics-based systems-design approach, utilizing mathematical models developed for each product. These equations are derived from Euler's formula and describe every parameter of the speaker system (drivers, cabinet, and crossover) and its performance characteristics (including vibration, oscillation, damping, and decay of driver diaphragms, cabinet materials, and electrical components). More mathematical transforms are then applied to create transfer functions representing the speaker-enclosure size, Thiele-Small driver parameters, and electrical parts for the complete speaker system.

As with the RC 9, Gauder says there are no off-the-shelf driver solutions used in the DARC 250 Mk II. The required Thiele-Small parameters (along with some additional requirements) are transferred to the driver manufacturers to produce the exact physical component that has been developed mathematically. Gauder believes there is no room for compromise, and the drivers must be made precisely as specified. The precise adherence to specifications results in drivers that are fast, rigid, and nimble, with strong magnetic properties.

The 250 Mk II enclosure is constructed from stacks of high-quality, oval/drop-shaped aluminum ribs with fiber damping ribs installed between each of them. DARC stands for Dynamic Aluminum Rib Construction. Dr. Roland Gauder has shared the idea of this rib design concept many times; it is how he thought nature would build a loudspeaker—like a human being, with a sternum (front baffle), ribs (sides), and spine (for stability) to enclose a volume for low resonance. Gauder says this construction technique provides structural rigidity and suppresses a loudspeaker's inherent tendency to vibrate. It also limits the ringing that would normally occur if the speaker were made of full-length aluminum side panels (which tend to require a significant amount of bracing to overcome such issues). Gauder's rib construction, first used in the Berlina series, was a natural fit for the use of aluminum, while negating any need for excessive internal bracing. The 250 Mk II's enclosure is made from 31 alu-

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Specs & Pricing

Driver complement: ¾" pure-diamond tweeter, 2" pure-diamond upper midrange; 7" black ceramic lower midrange; 2x 9" black back-coated aluminum woofers
Crossover type: Symmetrical 4-way
Crossover frequencies: 148/1200/4000Hz
Crossover slope: 60dB/octave
Impedance: 4 ohms nominal
Power handling: 810 Watt
Dimensions: 11.81" x 57.08" x 17.71"
Weight: 264.5 lbs., each
Price: $249,975 (add VU meter: $4995; add MusicLight: $4995)

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Analog vinyl: Basis Audio Debut Vacuum with Synchro-Wave Power Supply, Basis Audio 2800 Vacuum, TW Acustic Raven 2 tables; Basis Audio SuperArm 9, Basis Audio Vector IV (x2), Graham Phantom III, Graham 2.2 tonearms; Lyra Atlas Lambda, Lyra Atlas SL, Lyra Etna SL, Lyra Titan-i, van den Hul Colibri XGP, Hana SL, Hana Umami Red, Hana Umami Blue
Analog phonostage: The Raptor (Custom), Ayre P-5xe, Musical Surroundings Phonomena II+ w/Linear Power Supply.
Digital source: Intel i7 10th generation processor-based music server hosting JRiver Media Center, Roon, and Qobuz.
Preamplification: Dual Placette Audio Active Linestage
Amplification: Custom-modified solid-state monoblocks, Soulution 511 (x2)
Loudspeakers: Vandersteen Model 3a Signature with dual 2Wq subwoofers and dual SUB THREE subwoofers using M5-HPB high-pass filter, Gauder Akustik DARC 250 Mk II.
Cables: Assortment of AudioQuest, Shunyata, Tara Labs, Acoustic Research, Cardas, and custom cables.
Support: Minus-K BM-1, Neuance shelf, Maple wood shelf, Symposium Ultra
Acoustics: Walker Audio
Accessories: Aurios Pro, Pneuance Audio, Walker Audio, Klaudio KD-CLN-LP200, Kirmuss Audio KA-RC-1, VPI 16.5, Clearaudio Double Matrix Professional Sonic.
Room: 18' (W), 8' (H), 43' (L)

minum ribs, 32 fiber damping ribs, a heavy aluminum top, and a heavy aluminum baseplate. The front baffle is made of thick wood-based material mated with additional, constrained-layer-damped, heavy black flagstone attached to its exterior that has a textured finish to help breakup acoustic resonances. The ribs are compressed together with six threaded rods (three on each side) that provide the necessary pressure to acoustically seal the enclosure. The speaker is 30cm (11.81") wide, 145cm (57.08") tall, and 45cm (17.71") deep, and weighs 120 kg (264.5 pounds). The front baffle of the 250 Mk II holds, from top to bottom, the tweeter, upper-midrange, lower-midrange, and both woofers in a vertical array. Below the woofers, the Gauder logo is centered towards the bottom of the baffle. On the rear of DARC 250 Mk II are two sets of WBT Next-Gen binding posts that allow bi-amp or bi-wire configurations. The bottom of the baseplate has the port for the bass-reflex system, where the distance to the floor, set via four adjustable feet, provides a limited amount of control over the port's acoustic impedance. The height of each of the four feet of this wide base are easily set via a threaded dial. The position of each of the feet can be seen by a stepped indicator adjacent to the threaded dial. On the center rear of the baseplate is a bubble level that serves to verify each speaker's position relative to center-level. The bi-wire/bi-amp set of WBT binding posts are located on either side of the bubble level. Adjacent to the binding posts, on either side of the speaker,

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are a set of frequency shelf/level adjustment jumpers with an additional bass-extension adjustment jumper underneath the baseplate below the bubble level (more on these adjustments later). The DARC 250 Mk IIs are available in natural brushed aluminum, powder-coated (black, anthracite, white, silver), or custom clearcoat paint (available as a custom quote). Additionally, the speakers can be ordered in hand-polished natural aluminum. The fiber damping ribs are available in black, white, silver, or gold.

Because of the design approach Gauder Akustik employs, the speaker requires discipline in all aspects of development—the 250 Mk II's cabinet and custom drivers certainly fit that bill. Bringing this enclosure and high-quality driver-array together are the crossover designs that form the beating heart of the DARCs.

That beating heart is centered around complex, symmetrical, 12th-order (yes, that isn't a typo) passive crossovers that have 60dB/octave slopes. Although the cost is higher due to the doubling of parts, the symmetrical crossovers (equipped with components from Mundorf and Intertechnik) are distributed equally along the positive and negative terminals of the drivers. These crossovers contain 68 components that are sited on four printed circuit boards, strategically located to minimize magnetic interference. This design's complexity required significant processing power to solve several multivariate equations simultaneously. Gauder mentioned he had to feed these complex equations into one of the largest university supercomputers in Germany to solve them, thereby achieving the results necessary for such an ambitious crossover design, which incorporates the driver T/S parameters and the enclosure volume (sealed and/or reflex). The 60dB/octave crossovers significantly reject sound energy from audio signals outside the design-intended passband of each driver. Gauder believes having such steep crossover slopes ensures each driver can play its intended spectrum of music with greater clarity and dynamic headroom. This design is also said to have the advantage of better avoiding the breakup modes and crossover distortions that tend to show up sooner in lower-order crossover designs using similar-type drivers with music played at louder levels.

The 7" ceramic midrange operates in its passband from 148Hz up to 1.2kHz. The 2" pure-diamond midrange takes over at 1.2kHz and continues up to 4kHz where the ¾" pure-diamond tweeter comes in. Below 148Hz, the dual 9" back-coated aluminum bass drivers occupy a 68-liter ported bass-reflex enclosure. Gauder says the woofer/cabinet's lower frequency has a second-order high-pass filter around 20Hz to block DC and subsonic frequencies, suppress frequencies below the resonance of the drivers, and add an octave of low-end response. Additionally, Gauder says the filter reduces the impedance of the bass-reflex system, so the speaker can take (and use) more energy from the amplifier. (The bass-extension feature is covered below.) Therefore, Gauder recommends using a robust solid-state amplifier, although he says several high-power tube amps have driven the DARC 250 Mk II successfully. (Note: I intended to acquire a high-powered tube amp for this evaluation, but the timing didn't work out.)

Included in the design of the DARC 250 Mk II are two compensating time-delay filters: one for the pure-diamond tweeter, and one for the pure-diamond midrange. These time-delay circuits are used to counter the inherent inductor-induced group delay between the two diamond drivers and the ceramic midrange. The delayed tweeter and high-midrange relative to the lower-midrange is due to electrical group delay and the position of the driver coils relative to each other. Gauder says the audible result of this phenomena is generally observed as slightly smeared impulses and smoothed-over transients. Implementing his Time-Delay-Control (TDC) circuit adds the proper delay for the two diamond drivers to generate impulses and transients at the same time as the lower-midrange driver, allowing synchronous projection of sound into the room for a more precise impulse response. Gauder says the outcome is better instrumental attack without energy-robbing time-smear or smoothing.

The DARC 250 Mk II has three sets of adjustments that can help with in-room setup and/or personal preference. The first is a high-frequency shelf adjustment for the pure-diamond tweeter, operating at 4kHz and above, that has three settings: –1.5dB, 0dB, and +1.5dB. The second adjustment is the low-frequency shelf adjustment that operates on the woofers from 148Hz down, also with three settings: –1.5dB, 0dB, and +1.5dB. The final in-room selectable option is what Gauder calls the bass-extension adjustment. This allows the user to select six settings that control the bass levels between 30Hz and 70Hz. This range is generally in the area where room-related bass issues tend to arise because of loudspeaker placement. As such, a location in proximity to room boundaries can dictate which bass extension setting is implemented in the speaker: close to corner/wall tends to give more bass output, where farther into the room away from boundaries tends to produce less bass. Additionally, if there is an observable resonance, the levels in this area can potentially be adjusted for a more linear response. There are four bass-extension modules and a jumper for setting the levels.

This description of the complex design and specifications of the DARC 250 Mk II shows how much effort was put into making this loudspeaker. For a one-on-one discussion about the design of the DARC 250 MK II and close-up videos of the speaker in-house, check out the TAS YouTube channel's video preview/interview I conducted with Dr. Roland Gauder of Gauder Akustik, in which we discuss many of the features of this uniquely designed transducer.

The DARC 250 Mk II loudspeakers were delivered by a team from U.S. distributor Axiss Audio USA. Dr. Gauder was also on-site for installation. The process went very smoothly since the 250 Mk II is horizontally mounted on a rolling base inside its crate. The speakers were rolled into the listening room then lifted vertically into the approximate locations with the rolling bases attached. Once vertical, a couple of straps were removed and the DARC 250 Mk II was ready for speaker connection, po-

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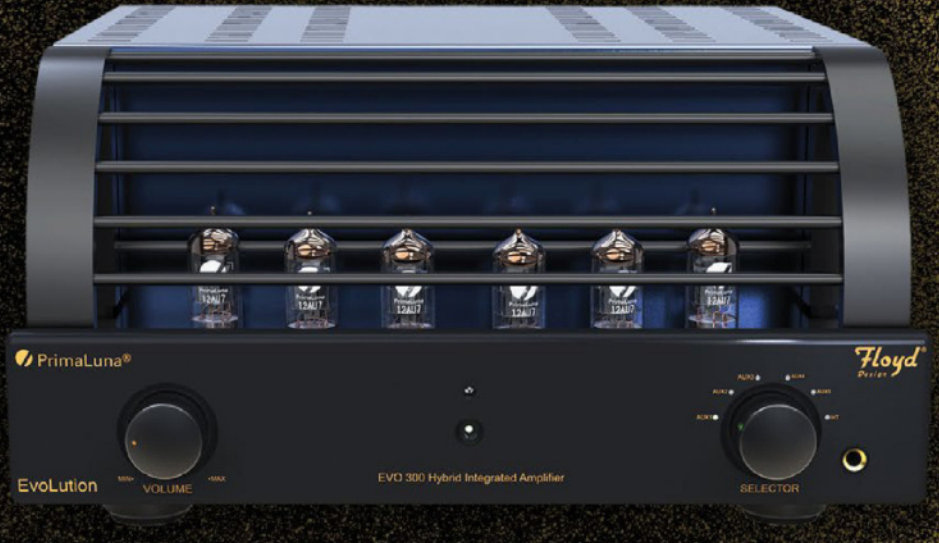

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JEFF DORGAY, TONE MAGAZINE

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sitioning, and music playback. Since the DARC 250 Mk II is shipped completely assembled, the process of setup is straightforward with no assembly required. The finish on the pair of DACR 250 Mk II's that arrived was a beautiful powder-coated black with black damping rings. In-room, the contrasting shades of black made a pleasing impression.

At this point, speaker connections were made, and we began the process of position adjustment and dialing in the speakers to the room. My listening room is approximately 18' wide and 43' deep, with an 8' ceiling (a little over 6000 cubic feet) with permanent openings that add a few thousand cubic feet of additional space. This room has proven to perform very well with low frequencies, providing a subjective result that doesn't overload with bass. To back up that subjective result, the measured low frequencies generated are usually smooth across the spectrum. Since I had experience with previous Gauder speakers, as well as many others, in this listening room, getting the speakers to initially play well didn't take much time. The speakers were approximately 4.5' from the sidewalls, 8.5' out from the front wall, 9.5' apart, and a little over 10.5' from the main listening position.

Utilizing the adjustment capability of the DARC 250 Mk II after more fine-tuning, I ended up leaving the high-frequency tweeter shelf adjustment set for neutral (0dB). The +1.5 dB setting in my more neutral (not over- or under-damped) listening room was slightly too much for my preference. The –1.5 dB setting was usable, but neutral was preferred. The woofer's low-frequency shelf adjustment sounded excellent in the neutral setting and even better for my room in the +1.5dB position, which is where I left it. (The –1.5dB setting sounded nice as well, but my preference was for the +1.5dB setting's overall sound.) When we tried the bass-extension setting in the maximum position, the DARCs produced a healthy amount of low end for speakers located that far away from room-boundary reinforcement. When we tried the +3.5dB module, the quality improved a bit, and that's where we left it. I believe this speaker's adjustability will prove to be particularly useful for many rooms and allow users to get the most satisfactory sound they can.

One item to take note of is the tweeter location on the baffle. There is a common myth that the listener's ear should always be at tweeter height on every speaker. It is just that, a myth, which can easily be exposed through discussion with a speaker designer who didn't design the loudspeaker to have the tweeter at ear height. The tweeter location is dependent on the designer's choice, the selected tweeter's dispersion pattern, and several other technical factors. The DARC 250 Mk II has an acoustic center (where the sound was designed to be coherent) located between the upper portion of the 7" ceramic midrange and below the 2" pure-diamond midrange. With that in mind, and based on careful listening, the 250 Mk IIs were slightly tilted (using the threaded feet) to align the acoustic center of the speaker with my listening position. Favorable results were achieved in terms of slightly increased resolution and instrumental focus.

During the two days I hosted the U.S. distributor and Dr. Gauder, we listened to music of many different types, time periods, and formats (CD, streaming, lots of vinyl, and 15ips/30ips open-reel tapes). In every case, the sound was significantly greater than favorable, enjoyable, and entertaining. I believe it is safe to say the distributor and Dr. Gauder were very pleased with the installation.

The sound of the DARC 250 Mk II is as nearly complete as any loudspeaker system I've experienced, anywhere. The level of transparency, dynamics, inner detail, spaciousness, depth of soundstage, truth to timbre, and revealing the intentions of the musicians, mastering engineer, composer, or a combination of any or all can be exciting, educational, enjoyable, and mesmerizing all at once.

I've heard many speakers that impress with initial transients, only to shortchange the note with a reticent sustain of the harmonic envelope and/or a miserly decay. Likewise, there are speakers that tend to soften and shortchange the initial start of a note in favor of harmonic development and/or note decay. With the DARC 250 Mk II, in my listening space, the note presentations appeared complete from the impulse of the initial transient to harmonic development and on to decay. This sense of transparency to the music results in uncanny realism that easily draws you into the performance. For example, the Analog Productions UHQR reissue of Steely Dan's *Aja* serves to demonstrate the plethora of instruments scattered throughout the mix. The clarity of many of these instruments was buried in other previously issued *Aja* albums on vinyl. Through the DARC 250 Mk II, the guitars were more readily audible in many sections where they weren't audible prior to the UHQR reissue. The ability to listen far into this multi-track pop/rock mix is fascinating. From the start of "Aja," one hears the fundamental and harmonics of the synthesizer and Fender Rhodes as transparently as can be and much more realistically than in prior pressings. The clarity of previously obscured percussion and multiple guitar licks also impressed. Overdubbed backing vocals were heard much more easily. This level of transparency and the ability to peer deep into the mix is something the DARC 250 Mk II seems to accomplish with ease.

One can play a classical recording of acoustic instruments in an acoustical space to get another picture of transparency. Whether the performance is large-scale like Rossini's *I'Italiana in Algeri, sinfonia* [Fonè 016, 45RPM] or small like Prokofiev's Sonata No. 1 played by Nadja Salerno-Sonnenberg with piano support from Sandra Rivers, you get a picture of the venue and of the space around instruments. The 250 MK II will also let you know more about the choices made with respect to how much of the recording venue ambiance is captured (or not). The Rossini sinfonia is a short thrilling instrumental delight. Due to the level of transparency of the 250 Mk II, the sounds from each section of the orchestra (down to individual instruments) are heard, while the ensemble remains whole, coherent, and complete. The speakers seem removed from the room, as there is no edge or glare, only what sounds like timbre-correct transparency. With the Prokofiev Sonata,

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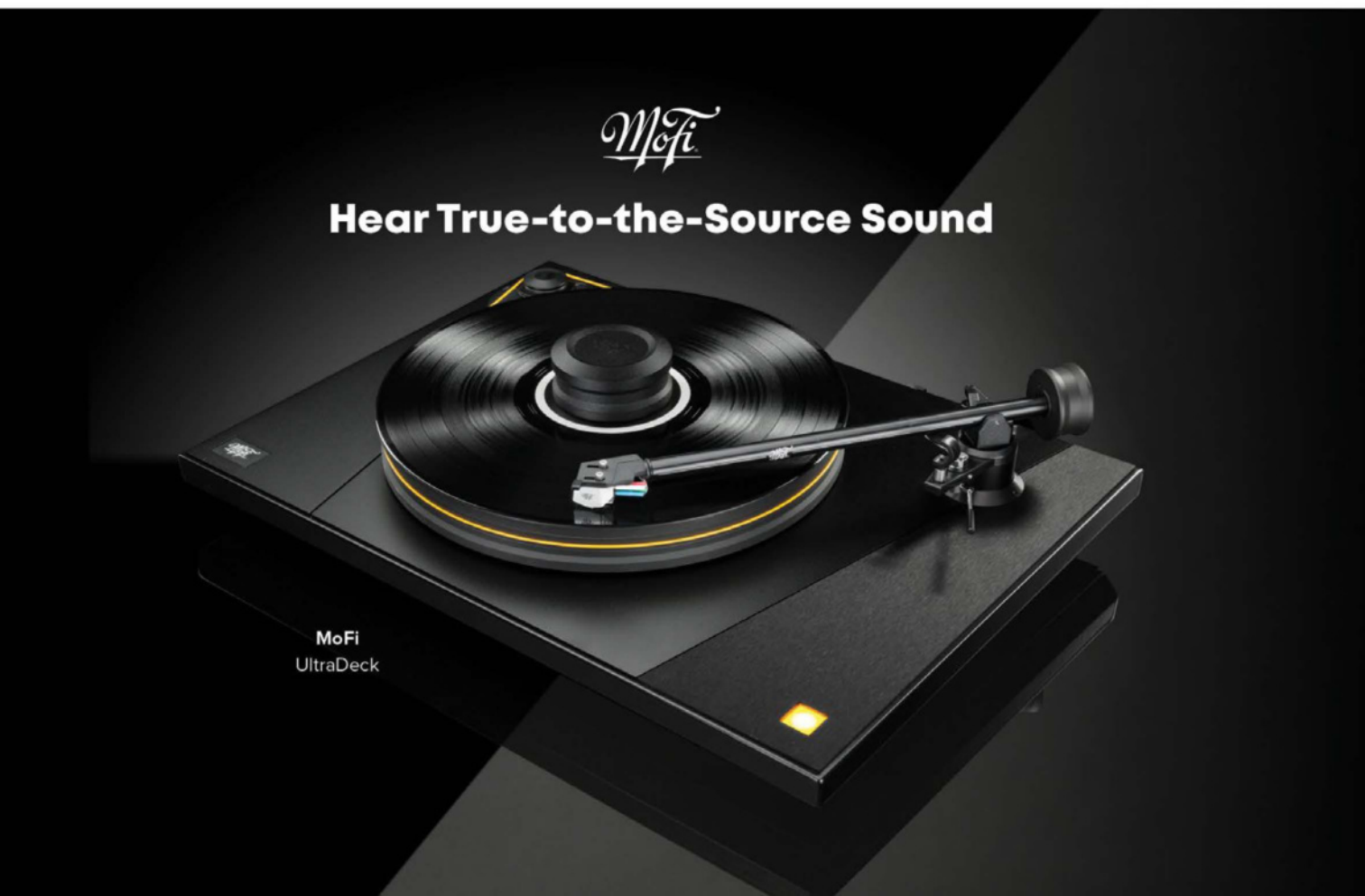
Nadia's violin tone is rendered exceptionally well, and her playing demonstrates that the beauty of her instrument is rendered with precision. You can hear the speed of attack and bow strokes used to convey the emotion of the music. Rivers' piano is rendered equally expressively, especially the low registers, harmonics, and hammer strikes. With the DARCs, this performance tends to sweep you away to the moment in that space.

With the 250 MK II, one gets an unblemished sense of music's pace, rhythm, and timing (sometimes called PRaT) because of its ability to accurately convey the impulse at the start of notes, which gives music the propulsive drive it needs. Herbie Handcock's *RockIt* is an excellent example of keeping up with the speed of the music and its PRaT. The DARCs zeroed in on the timing of this music and never let go. The group's rapid-fire percussion, continuous drumbeat, and synth bass set a foundation that allowed the relentless musical drive to flow without etch or glare. Musical timing was spot on due to excellent impulse response that made the musical attacks sound alive and rhythmically in step. Additionally, nearly anything from Count Basie started feet tapping. One could follow the rhythmic tempo shifts of Stravinsky's *Firebird* Suite, or the slow but melodic rhythm of Ray Brown's bass on "'Round Midnight" from the *Memories of Thelonious Sphere Monk* album, or the steadfast dynamic pacing of the live version of DJ Kool's "Let Me Clear My Throat." Each piece of music was reproduced with precise tempo and propulsive drive through the DARC 250 Mk II.

Vocals sounded pure, realistic, and truthful. There was no distorted cresting on fortissimos, no slight winces because of unnatural speaker-induced timbral anomalies (typically noticed across hand-offs from one speaker driver to another, where some crossovers can cause weird phase shifts that muck-up harmonics). Régine Crespin singing Ravel's *Shéhérazade* on a 1963 Decca, backed by a wonderful orchestral soundscape, produced powerfully intense vocals with effortlessly rendered crescendos through the 250 Mk II. One could clearly hear the shadings and intensity of her soprano accompanied by its reflections within the performance venue. Another example would be Harry Belafonte's *Belafonte Sings The Blues*. This album covers Harry's vocals from soft and smooth ("A Fool For You") to louder and more dynamically expressive ("Losing Hand"). Through the DARC 250 Mk II, his vocals were pure and clear with excellent weight and plenty of genuine tone color that made him sound real. It was relatively easy to listen and detect that the recordings of these two songs were captured at different times and different studio locations.



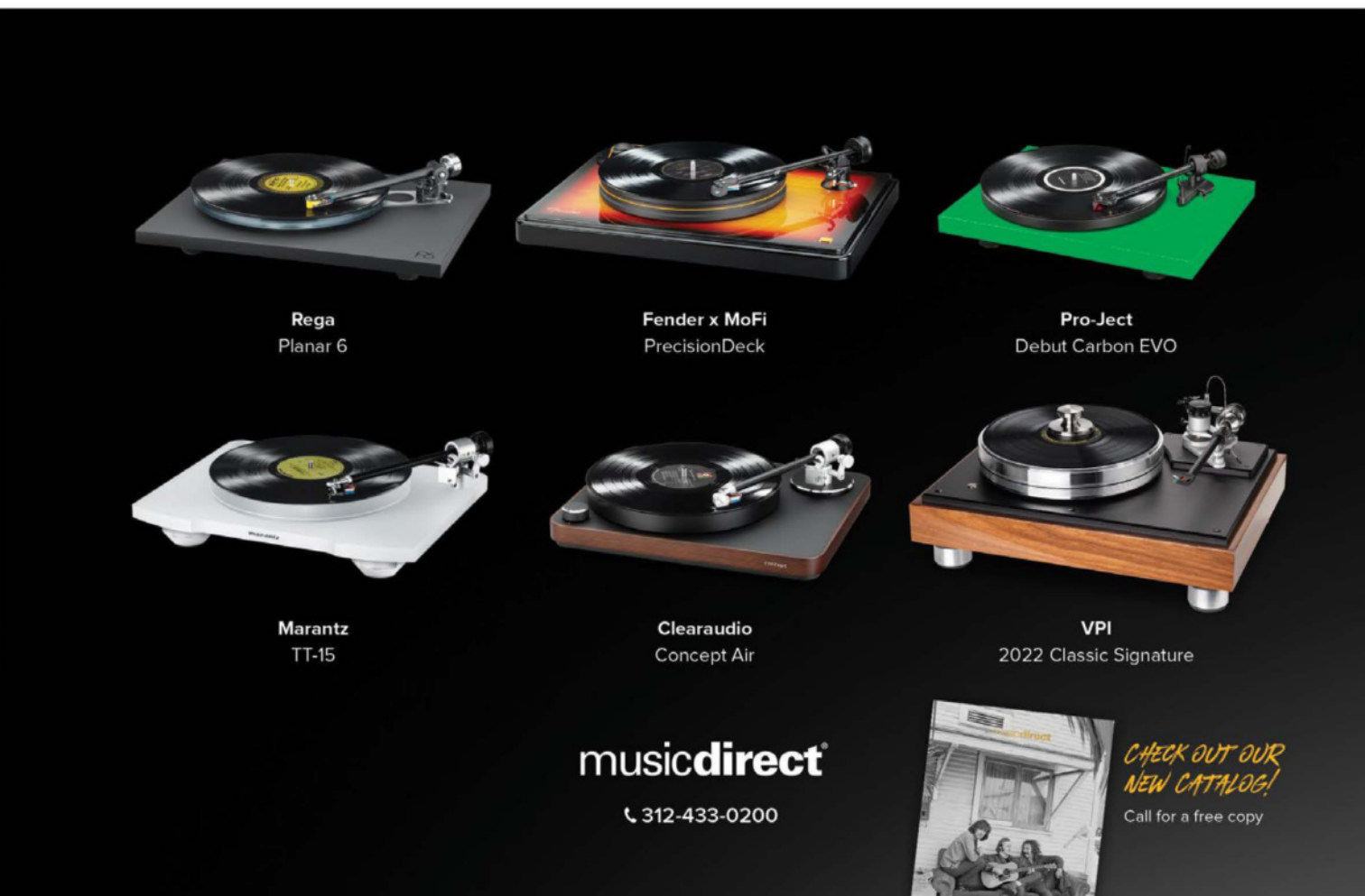
Speaking of Belafonte's "Losing Hand," the DARC 250 Mk II rendered the dynamics of his appealing pianissimo-to-forte vocal shifts with ease. When transitioning many levels of loudness, Belafonte's voice never sounded strained or compressed due to the speakers. The dynamically impressive guitar or saxophone accompaniment, with occasional spotlighting, was just as impressive, rendering the entire composition a delight. The Rossini performance mentioned earlier produced huge dynamic swings across a massive soundstage that created a mid-forward hall sound that was invigoratively captivating to the point of holding one's attention until the very finish, which is followed by a standing ovation from the attendees of this live performance.

The bass performance of the 250 Mk II is lyrical, fast, clean, and solid. Ray Brown's playing on "Round Midnight" digs deep, and the speakers captured every bit of the wonderful tone of his instrument without adding any perceived overhang. His bowing was smooth and flowing with every note. Similarly, Steely Dan's *Aja* played excellently. It is dynamic, dry sounding, and has good punch without any hint of misguided woofer action. The drums of the Rossini were spectacularly fast with attack and then retreated nearly as quickly as they appeared, which gave the music its dynamic drive and hard-hitting fortissimos. Every piece of music played with instruments in this lower register was near excellent, thanks in no small part to the DARC's design and adjustability (bass level and bass extension) in the low octaves.

The DARC's midrange is also pure and uncluttered. No matter how intense the music got, as with the Rossini piece, it never compressed or lost its composure or its ability to clearly present the music and its nuances. It was a joy to witness the way timbre-correct sounds were located across the soundscape unwaveringly or how a mono recording with all instruments centered was still easily parsed because of the clarity.

High frequencies through the 250 Mk II were very pure and clear sounding with no hint of speaker-induced harshness or breakup on any music played. Bells and cymbals showcased the speaker's excellent behavior. The percussion instruments on Jennifer Warnes' "The Panther" were delightful, and their distinct tones were easily rendered. Likewise, the digitally generated cymbals of "Rock-It" and the orchestral percussion of Ravel's *Shéhérazade* left me with the same feeling of outstanding treble performance.

These virtues of transparency, spaciousness, inner detail, soundstaging, imaging, etc. would go for naught if the speaker



couldn't put you at ease and allow you to enjoy the performance. The DARC 250 MK IIs have that musical ease that gives you the elusive element of satisfaction with the thrill, sorrow, joy, humanness, and/or musical flow of a performance. Through these speakers, music sounds complete and coherent without any anomalies that tend to spoil the moment.

Having listened to and lived with the DARC 250 Mk II for several months, I have to say it is an excellent performer across the board. Nothing is perfect, but these speakers perform extremely well. Having said that, a couple of items come to mind that could be of interest to readers.

The first thing is the innovative design of the bass system and the use of the high-pass filter along with the bass-extension modules. This greatly beneficial feature is only possible because of Gauder's design. One of the conditions that result from this feature is his recommendation to use a robust/powerful solid-state amplifier. The reason for this is that to get the bass extension modules to do what they do, the speaker will "borrow" power from the amplifier to achieve the selected bass levels. Given the performance possible with these speakers and the significant investment to acquire them, it is best to pick a suitably capable amplifier. It isn't a good idea to skimp on the use of a suitable high-power/current amp to drive such a well-designed product. During my evaluation time, I used my high-power/current solid-state monoblock amps or a pair of Soulution 511 stereo amplifiers configured for monoblock operation. In both cases, there was abundant power on hand to drive the DARC 250 Mk II brilliantly.

The second observation is the bass-extension jumper is on the bottom of the speaker base. Because of this, the speaker will usually require being tilted slightly forward to remove/install a different module. Hopefully, the optimal module will be installed during initial setup. If not, or if the speaker is moved, or if there are other changes, be sure to get help to safely tilt the speaker.

The third observation is minor but notable. This has to do with the location of the inner WBT binding posts. A normal-sized adult's hand can't get comfortably between the post and the rear of the enclosure. Because of this, you have to use ¾ of a rotation to torque the binding posts down tight enough to secure a spade connection. Thankfully, the WBT posts have enough grip to allow you to do this. That said, I'm hard-pressed to find any serious flaws with the DARC 250 Mk II's sonic performance or visual styling.

The sound produced by the DARC 250 Mk II is spectacular; the speaker is mesmerizing in the way it removes itself from the performance. While DARC officially means Dynamic Aluminum Rib Construction, it could just as easily stand for Dynamic, Articulate, Resolving, and Coherent. It has fabulous transparency to both the music and upstream equipment. Based on the many attributes observed in-house and mentioned throughout this evaluation, the DARC 250 Mk II is truly a top-echelon performer. tas

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Silent Angel Bonn NX Pro Ethernet Switch and Genesis GX Word Clock

The Final Frontier

Jacob Heilbrunn

A good deal of gloating has accompanied the rise and fall of the compact disc, whose sales have been surpassed by LPs. But even as vinyl lovers keep it old school, digital streaming has come on strong, as well. These days I find myself listening to a wide variety of new recordings through my Roon Nucleus, ranging from classical to pop. The convenience factor is just too great to deny. Plus, it sounds great. No matter how much the tribunes of vinyl may protest, the blunt fact remains that the noise floor of digital is lower—and not by a small margin—than anything you're going to attain on an LP. These days, I find myself listening to as much digital as vinyl.

So, when Anthony Chiarella, a longtime importer of audio wares, including the mighty Gryphon Commander preamp that I recently reviewed, suggested that I try the $3999 Silent Angel Bonn Pro network-switch with eight Ethernet ports that can be connected to a ground box, his pitch fell upon more than receptive ears. Chiarella also included a $3799 Genesis GX word clock that can be mated with the Bonn NX Pro switch. The GX offers both a 25MHz and 10MHz word clock output with gold-plated output connectors. As goofy as the products appeared—an Ethernet switch, for crying out loud—I've been surprised, if not humbled, in the past by the capabilities of audio gear that I did not think could have much of an impact on musical reproduction. In this instance, I was not surprised; I was shocked.

The combination of the Roon Nucleus and dCS Apex Vivaldi SACD/CD stack that I've been using for digital playback is nothing to sneeze at. But inserting the Silent Angel into the mix had a significant and beneficial effect upon musical playback that both confounded and delighted me. How does it work? I'm no technical expert and I suspect that a device like this is never going to satisfy the "objective" measurement crowd (indeed, Silent Angel products have already come in for a spanking on at least one website that professes to provide reliable measurements of audio equipment). Silent Angel itself reports, "Our objective in designing the Bonn NX is to ensure the device operates at a stable system voltage, sends precisely timed data packets, and reduces extraneous output noise. We have found that even the smallest enhancement can improve sound quality and the implementation of many small enhancements elevates the potential of high-resolution streaming networks."

It made me want to explore and listen to more music.

What did I actually hear after plugging in the Silent Angel? A lot of nothing. The fabled black background—or to put it more precisely, subliminal hash—was markedly blacker. I should stipulate that I was not convinced that the Genesis GX word clock provided any additional benefit. I plugged it in and out and could hear no difference. With the Bonn Ethernet switch, however, I could and did.

On a recent visit, the inimitable Peter McGrath of Wilson Audio alerted me to a wonderful new release of Wynton Marsalis playing the legendary Hot 5 and Hot 7 recordings that were Louis Armstrong's breakout recordings in the late 1920s. Ever since I listened to them as a child, they've numbered among my favorites. When McGrath was here, I enjoyed the renditions of "St. James Infirmary" and "Skit-Dat-De-Dat," but must confess that there was a slightly glazed quality to the music, which I've also heard on other Jazz at Lincoln Center recordings. The Silent Angel banished much, if not all, of it. Suddenly the drums in the rear were better located spatially and had more whack. The chimes now shimmered in the air. The trumpet lost a good deal of its glare. And the overall dynamics were

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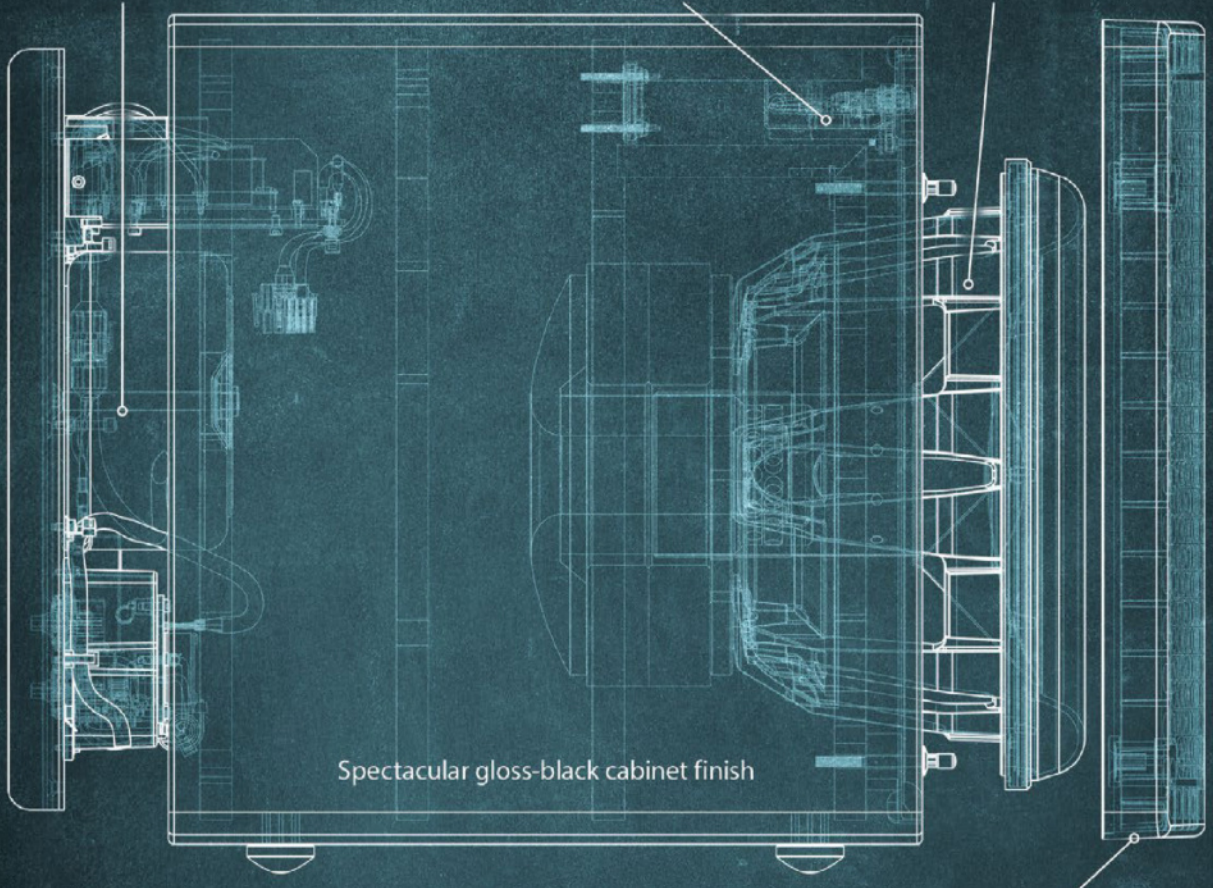

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Subwoofers pictured with grilles removed.

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Specs & Pricing

Bonn NX
Type: 8-port Ethernet switch
Word clock input: BNC jack
Word clock frequency: 10MHz
Dimensions: 17.37" x 2.05" x 6.89"
Weight: 5.75 lbs.
Price: $3999

Genesis GX Word Clock
Type: Word clock generator
Outputs: Four independent word clocks
Clock frequencies: 10MHz (x2), 25MHz (x2)
Dimensions: 17.29" x 2.49" x 9.95"
Weight: 16.3 lbs.
Price: $3799

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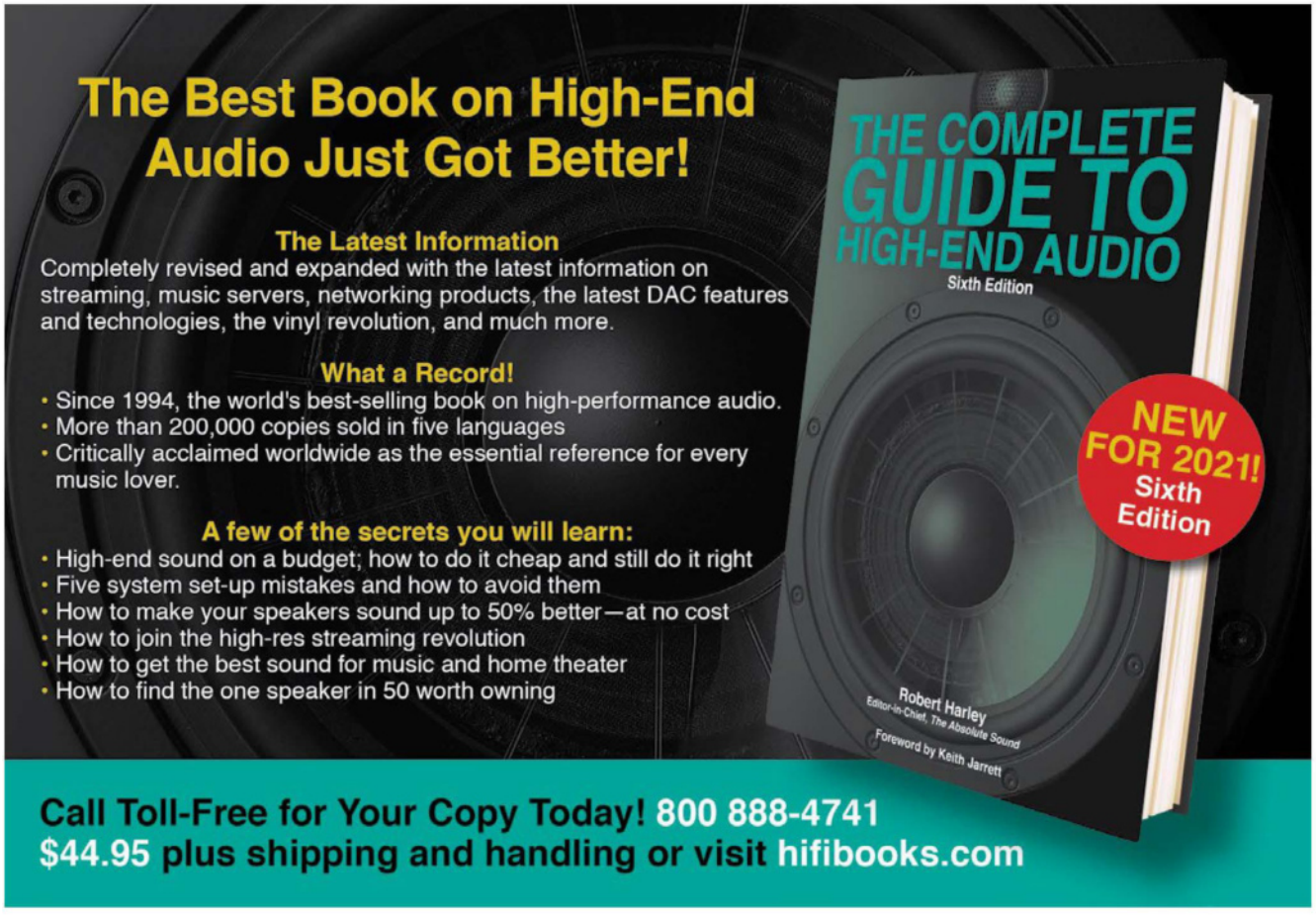
much improved. In a word, the swing music swung.

That same sense of an increased fidelity was apparent as well on another album that I've been streaming quite a bit, a release of Schubert's chamber works on the Ordire label featuring Christian Tetzlaff, Tanja Tetzlaff, and the late Lars Vogt. The Notturno for Piano Trio is one of my favorites on this album, and the Silent Angel endowed it with another layer of sepulchral spookiness. The pizzicato plucks, for example, that the violin and cello exchange in one passage possessed a dynamic energy that topped anything I had previously heard. They could hardly have sounded more precise, lithe, and potent. On Beethoven's Fourth Piano Sonata played by Andras Schiff, I noticed that the fortissimo passages in the bass region sounded more grounded and centered than they had previously.

The most engrossing thing about the Silent Angel was also the most basic: It made me want to explore and listen to more music. In looking at my listening history in the Tidal streaming site, it becomes apparent that I was zooming all over the place, from Mozart's violin sonatas to 2Pac's album *All Eyez On Me*. The longer I listened, the more impressed I became by the Silent Angel. It truly is angelic. tas



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Manufacturer Comments

Gauder Akustik DARC-250 Loudspeaker

Special thanks to Andre Jennings for his detailed and insightful review of the new Mark II version of our DARC 250 reference loudspeaker. It really did require running computational models on Germany's most powerful supercomputer to design the 4-way Symmetrical Crossover with 12th-order >60dB/octave slopes and our new Time Delay Circuit (TDC). This new crossover is the most complex speaker circuitry we have seen in high-end audio, and we are very happy that Andre was able to experience and capture its benefits firsthand.

Real-life music is not sinewaves at different frequencies; it is a complex series of impulses. For a multi-way dynamic speaker to bring life to music, it must master the time domain and precisely deliver each musical impulse. It has been my life's work to create a loudspeaker that accurately re-creates the music exactly as it was played when it was recorded. With our new Time Delay Circuit and updated crossovers, our latest Gauder Akustik loudspeakers have reached a whole new level of lifelike realism. Thank you, Andre for capturing the essence of our design philosophies and what makes Gauder Akustik special.

Dr. Roland Gauder

Silent Angel Bonn NX Network Switch and Genesis GX Clock

On behalf of everyone at Silent Angel, I'd like to thank Jacob Heilbrun for his insightful review of our flagship Genesis GX Clock and Bonn NX Network Switch. Silent Angel is committed to both scientific and observational research of digital-audio playback systems, and we're proud that Jacob was impressed with the results and that he found Silent Angel "truly is angelic." I couldn't agree more!

Anthony Chiarella
Specialty Sound and Vision

Gold Note PH-1000 Phonostage

Gold Note as a company was founded in the 1990s, and its very first designs were turntables, tonearms, and phonostages. The PH-1000 is the result of over two decades of know-how and allows for easy adjustments while playing music. The architecture is aimed at providing an intuitive interface while keeping the signal path entirely analog. Every time the listener changes EQ, gain, loading, capacitance, and so on, the changes are applied in real time in the analog domain, physically changing the path of the audio signal on the board. Phonostages are tools intended to reproduce the information contained in the record's groove with fidelity and must match a cartridge's electric requirements; therefore, they must provide a high number of settings. The PH-1000 is available in three models: the PH-1000 LITE (max gain of 69dB, doesn't feature a Class A preamp stage, line inputs, external load, custom EQ curves, L/R swap); the PH-1000 (max gain of 74dB, doesn't feature a Class A preamp stage or line inputs); and the flagship PH-1000 LINE.

Tom Dolfi
Sales and Marketing Manager, Gold Note

Acora Acoustics VRC Loudspeaker

Andrew Quint's review of the VRC states that "with smaller Acora models, [*Valerio*] Cora allows that the choice of granite species will affect the character of the sound; he feels this is much less of an issue with the VRCs."

Valerio discovered black granite is the best material for pure sound quality and we also recognize that some décors necessitate contemporary colors or unique applications. For these reasons, Valerio Cora has worked tirelessly to source materials that come as close to the original specifications of the black granite as possible. With the VRCs, Valerio has even more opportunity to optimize the cabinet during assembly, making the choice of material less relevant to the sonic outcome. This allows for the same amazing sound quality and the aesthetic of the listener's choice. Thanks again for this opportunity to be featured in *The Absolute Sound*.

Isaac Markowitz
Director of Sales and Marketing
Acora Acoustics

JMF Audio HQS 7001 Amplifiers and PRS 1.5 Preamplifier

We want to thank TAS and especially Jonathan Valin for his excellent review of the JMF Audio HQS 7001 mono amplifiers and the PRS 1.5 dual-mono amplifier. JMF Audio strives to make components—amplifiers, preamplifier, phonostages, power-line filters, cables—that give passionate music lovers the ultimate listening experiences in their homes for all music genres. To have a passionate and very experienced music lover like JV pick the JMF Audio monoblocks and preamplifier as references is a huge honor.

Michael Vamos
Audio Skies

J.Sikora Reference Turntable

We would like to thank *The Absolute Sound* for its review of the J.Sikora Reference turntable and KV 12 MAX tonearm. Though J.Sikora has only been in the U.S. market for a few years, our Reference turntable and KV MAX tonearms are the result of 15 years of hard work by our founder Janusz Sikora, his son Robert, and their dedicated team. It is rewarding that Mr. Heilbrunn found such enjoyment listening to our products. Our design goal for the Reference and the MAX tonearms was to combine precision, musicality, industrial design, and value. There are no tricks or strange gadgets with our products. Instead, we offer precise execution of unique approaches to optimize the listener's experience. We combine many decades of knowledge in the application and interaction of metals with state-of-the-art engineering and machining. We take heed of Mr. Heilbrunn's final note that several of the most expensive turntables, up to 10 times the price of the Reference, exceed the performance of our current top offerings. This tells us that we are on the correct path, and it inspires us to work even harder in our future endeavors.

Jeff Fox
Notable Audio

A Small Miracle
From PS Audio
aspen FR10 Loudspeaker
PS AUDIO

Female Jazz Vocalists of Note

Impressive New Recordings by Must-Hear Singers

Karin Plato

I am delighted to share these notable female jazz vocalists of various ages, styles, and stages within their careers, with influences of swing, soul, folk, pop, rhythm and blues, and free jazz. There are many other artists that I would like to have included on such a list, but for now I chose these 11 for their musicality and the quality of their recordings. A few of these artists are relatively new to me, while others I have been listening to over the years, excitedly awaiting each new album they release. I included recordings that had been recently released, with the most current one released in 2024 and some as far as back 2019, because some artists do not release albums on an annual basis. A few artists I believe deserve wider recognition while others may already be known in general circles to fans of vocal jazz-based music.

Alicia Olatuja. Alicia possesses an enticing shimmering voice that ranges from a deep soulful sound to warm and sweet, rich in timbre no matter what register she sings in. Funky grooves and sultry arrangements have Alicia singing freely with a distinctive style that may defy category. Listen to "Hide and Seek" on her album *Songs from the Minds of Women* and you become swept into the glorious sound painting subtly and colorfully shaped. Every song displays aspects of her musical sophistication, and it seems there's no limit to what she brings to the musical table. The delicate nature of "Child of the Moon" by Natalya Kia Phillips never manipulates but rather coaxes us into its beauty, and listening to "Cherokee Louise" by Joni Mitchell reveals a deep tenderness and soul-baring performance.

Caity Gyorgy is a Canadian-born rising star who is making her mark in the jazz world. Caity is a fabulous singer of the songs in the jazz standards catalogue and she also happens to be a wonderful songwriter. In her latest album *You're Alike You Two*, a duet project recorded with pianist Mark Limacher which features the music of Jerome Kern, you may hear the influence of vocalists such as Ella Fitzgerald and Sarah Vaughan, but throughout you will hear all the elements of Caity's own glorious sound. Her scat solos are thrilling and inspiring. She sings with poise, polish, and ease. With a pure unaffected vocal sound Caity plays within the music in artfully shaped phrases and motifs. The gem "April Fooled Me" will put a tingle down your spine and "I'm Old Fashioned" is simply stunning. She closes the album with an original, "The Bartender," and in this song you will hear Caity's great skill as a wordsmith and tunesmith.

Champian Fulton is a powerhouse of a musician! Equally talented as a vocalist and as a pianist, she has been releasing high-quality albums of beloved jazz standards and other great repertoire on an annual basis. Champian swings with clocklike precision, and no matter the tempo there's an ease and excitement in her music making. Her singing includes kittenish scoops and inflections, and you will often hear the smile within her sound. On her recent live recording *Meet Me at Birdland* with bassist Hide Tanaka and drummer Fukushi Tainaka, you can fall in love with the warmth of her sound on the standard "Just Friends,"

Sinne Eeg.

STEPHEN FREIHEIT

Lizz Wright. TONY SMITH

which begins as a plaintive sweeping waltz ballad and then gradually kicks into a walking swing tempo. Champian is one of the few vocalists I know who can sustain the "s" of a word such as in "friends" and make that sound musical, and on words like "two" there's a type of caress on the sound of "ooh" that make that word and sound come alive. Every song is a work of art in Champian's hands (and voice).

Sinne Eeg freely employs every aspect of her vocal range and creates an inviting landscape.

Danish vocalist **Sinne Eeg** has a beautiful engaging vocal tone, and her album *Staying in Touch*, recorded with bassist Thomas Fonnebaek, is a winner. The first track, "Spring Waltz," is a delicate romantic waltz around the room where we are introduced to the various color schemes and interplay we will hear throughout the album. There's great use of dynamic range and a feeling of "in the moment" music making with this duo, such as when they play "Too Close for Comfort." Sinne freely employs every aspect of her vocal range and creates an inviting landscape whether singing lyrics or scatting. The Dave Brubeck classic "Take Five," both playful and rhythmically captivating, is a winner. Beautiful long tones, fantastic swing feel, and space galore on ballads add additional pleasure and variety.

Jo Lawry is an astonishment. You may have heard Jo's beautiful voice on Sting's albums in the past. Jo's album *Acrobats* in a voice, bass, drum format highlights her immense ability as a jazz vocalist, freely scatting and moving easily through key changes and vocal registers. It never feels as though we are hearing someone sing in the "let me show you what I can do" manner but rather Jo's clear bell-like voice connects with each lyric and phrase with a feeling of joy and ease. "Takes Two to Tango," a duet with bassist Linda May Han Oh, is both dynamic and playful. Jo's original song "Acrobats" sets the stage for her high beam skills and every song that follows builds on the feeling for pure satisfaction for the listener. The voice/drums duet of "You're the Top" with drummer Allison Miller is a WOW feature, but honestly, every single track is superb.

Kate McGarry. Released in 2021, Kate's *What to Wear in the Dark* is a gorgeous collection of songs perhaps familiar to listeners and reimagined here with harmonious and rhythmic surprises. You will hear the occasional "little girl" innocent quality in Kate's unique vocal sound but don't let that fool you. That's just one of many sounds and approaches that she uses to take you into her world where a song you thought you knew makes tears come to your eyes for the first time. Kate is all about the heart and soul and digging deeper. She'll burn a blues with a soulful belt as in "God Moves on the City." A song like "Here Comes the Sun" becomes a beacon of hope and you can hear the smile within her voice. "Feelin' Groovy" plays skillfully with dynamics and contrasts. We hear Kate's deeper speaking voice reciting, escalating frantically a passage with words about what musicians need to do to "make it in the industry," and then suddenly, there's a complete release into a cool relaxed vibe as Kate's singing voice again returns to tender sweetness. The album features guitarist Keith Ganz (who also co-produced the album with Kate), Gary Versace, and other top-notch musicians.

Katie Ernst is a vocalist/bassist with an ethereal, clear, and often delightfully delicate sounding voice. Her recent release *Intermezzo* with clarinetist James Falzone leans towards free jazz, including five tankas which are short, improvised pieces a minute or two in duration. Placed between various songs/pieces, these tankas highlight the beauty of the voice, bass, and clarinet in unison or playing off each other in tandem and at times we hear a shruti played by James with a haunting dronelike sound as a foundation for the improvisation. The opening track "Bounce," an instrumental composed by Katie, is what I would call "winner in the window," inviting us into a beautiful listening experience. There are wordless songs such as "The Night at the Restaurant" composed by

Laura Anglade.

KASIA IDZKOWSKA

James Falzone and other songs with lyrics, including the haunting John Dowland song "Flow My Tears," composed in 1600. An Irish folk song featuring Katie's pure voice with the counterpoint of the clarinet playing repeated triplet patterns, "Who Put the Blood" is captivating. Very compelling music making!

Laura Anglade. A Canadian jazz vocalist, Laura has already done a great deal in her career, including touring with Melody Gardot in Europe and in the USA. Her recent album *Venez donc chez moi* is an intimate duet project with guitarist Sam Kirmayer. The songs are all sung in French, displaying Laura's rich darkly toned voice. Jazz fans will recognize certain standards but may not have heard them sung in French before. For example, "Que reste-t-il de nos amours," originally written with French lyrics, is often sung in English as "I Wish You Love." There's such an understated ease as Laura floats throughout her vocal range, swinging up into pure head tone colors and then easily dropping to the lower bass register. Warm vibrato with a nice cushion of air around the long tones, lovely note perfect scat trading with Sam, buoyant swing grooves, and gentle bossa and rubato passages, all sweep us in. You may not understand French; however, you will certainly understand the language of honesty in this captivating performance.

Lauren Henderson has a warm and deeply timbred voice with a tremolo-style vibrato on her sustained notes. Her latest album *Conjuring* is musically sophisticated and understated throughout; this sultry and delicate style on standards such as "That Old Black Magic" enable a painterly approach to the music. It's all about a mood and a vibe that stays true whether songs are bossa nova grooves or ballads. She leaves lots of space in beautiful phrase shaping, allowing us to hear the unfolding of songs in careful layers, such as in her original "Spells." Half of the songs on this album are originals by Lauren, including the title track with its haunting, hypnotic theme first stated by the instrumentalists and then reintroduced by Lauren's voice. Lauren arranged and produced this album, which features the great vibraphonist Joel Ross, guitarists Gabe Schnider and Nick Tannura, and others.

Lizz Wright. Hearing Lizz Wright sing is exhilarating. Recorded live in Berlin, *Holding Space* features the rich and soulful sounds of Lizz singing in her characteristic honest and heart-stirring manner with songs we may have heard before, but now new stories and possibilities are revealed within each song. This is a simmering and glowing voice but that can surely sizzle into the burn of a blues. Neil Young's "Old Man" becomes a gospel-tinged octave leaping kick into high energy gear. There's always warmth and connection in her every note placement no matter which part of her vocal register. Penned by Rose Cousins, "Grace" is sung in a personal prayerlike approach, and k.d. lang's "Wash Me Clean" is a gorgeous spacious ballad waltz. Lizz is an engaging artist, one who fills the music with depth and spirit. Every nuance and vocal bend and melisma are a spine-tingling gift. Passion and poise are keywords I think of with respect to Lizz Wright.

Lucy Yeghiazaryan. Released in 2023, Lucy's *Some Other Spring* features guitarist Charlie Sigler and bassist Vince DuPont with Grant Stewart playing sax on a few tracks. Lucy is a fascinating NYC jazz vocalist with a rapid warm vibrato reminiscent of a tenor sax, employing swoops and swinging phrases in a completely distinctive manner. Rhythm is her business, and her sense of swing is infectious. Her ballad singing is artful and sophisticated, and her scat solos are skillfully and musically shaped. You may hear hints of Billie Holiday in her sound; however, Lucy follows her own heart. In "I'll Never Stop Loving You" she uses the space and silence between the notes as she floats and swoop into her upper register notes. In "Late Late Show" little vocal punctuations energize phrases such as "Kiss, kiss all night long" in playful fashion, and there's great swing attitude on "Hot 'n' Cold Running Tears." Lucy is elegant and fearless and sings in a bold and beautiful fashion. tas

Lucy Yeghiazaryan is elegant and fearless and sings in a bold and beautiful fashion.

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Freedom Weaver: The 1959 European Tour Recordings

Sonny Rollins Shines on Previously Unreleased Live Dates

Derk Richardson

In the summer of 1959, Sonny Rollins began his legendary first sabbatical from public performance. Through the fall of 1961 he practiced his tenor saxophone playing on the Williamsburg Bridge, which he could walk to from his residence on Manhattan's Lower East Side. Backtrack a few months from the start of that self-imposed hiatus and Rollins could be found on his first European tour, which ran from February 21 through March 18. Several concerts and radio and TV broadcasts in Sweden, Switzerland, the Netherlands, Germany, and France were committed to tape, but until they fell into the hands of reissue maven Zev Feldman, they were available only as bootlegs. Now, with sound restoration by George Klabin and Fran Gala, those recordings have been collected as *Freedom Weaver: The 1959 European Tour Recordings*, which is available as a four-LP or three-CD set. This Resonance release includes a booklet with a cache of photos, liner notes by Bob Blumenthal, and interviews with Rollins (now 93 years old) and fellow saxophonists Branford Marsalis, James Carter, Joe Lovano, James Brandon Lewis, and Peter Brötzmann.

Leading up to the tour, Rollins' fame had grown as he graduated from sideman status—with Miles Davis, Thelonious Monk, Clifford Brown and Max Roach, and the Modern Jazz Quartet—to record a series of historic albums under his own name. From the fall of 1956 to the spring of 1958, his output included *Tenor Madness*, *Saxophone Colossus*, *Newk's Time*, and *Freedom Suite*, among other LPs. By the time he left for Europe, the 28-year-old Rollins had recorded the breakthrough *Way Out West* with Ray Brown and Shelly Manne and settled into playing in a piano-less trio, "strolling" against bass and drums only. As he told a Swedish television interviewer, "I find that bass and drums gives me the proper support that I need without the added chords that a pianist plays, which sometimes get in my way and hinders my ideas."

In Europe, Rollins' bassist was Henry Grimes, who later played with Cecil Taylor, Albert Ayler, and Pharoah Sanders, and his main drummer was Pete La Roca, who was replaced by Joe Harris for a set in Stockholm and by veteran bebop innovator Kenny Clarke for a gig in Aix-en-Provence. Although he is more forgiving of himself and his sidemen in his 2022 reflections on the tour, Rollins reportedly wasn't entirely pleased with Grimes and La Roca (the latter was sent home after the March 9 performance in Frankfurt) or his own playing. The 26 tracks presented here in chronological order allow today's audiences to judge for themselves and listen for hints as to why Rollins was uncomfortable with "unjustified praise." Such clues are in short supply. Even Rollins, in retrospect, grants, "Everything seemed to be happy within the groups and performances. These records do have a certain flair. Perhaps I was overly critical over the years."

In full evidence are the qualities that defined Rollins' distinctive style: the robust, rounded tone influenced by Coleman Hawkins, the often-staccato phrasing, and his fondness for improvising on popular tunes: This set includes four renditions of "I've Told Ev'ry Little Star," two each of "I Want to Be Happy" and "It Don't Mean a Thing," and riffing extrapolations of "There Will Never Be Another You," "Love Letters," "How High the Moon," "I Remember You," "Cocktails for Two," and "But Not For Me." Rollins' unpredictably unfurling solos bear out James Brandon Lewis' assertion that "He can develop anything," and Joe Lovano's observation that "He's creating his own melodic flow [and] melodic rhythm inside the harmonic rhythm on whatever tune he was playing."

Highlights include the Rollins originals "St. Thomas," "Oleo," and "Paul's Pal," the ballads "Stay Sweet as You Are," "It Could Happen to You" (featuring the kind of stirring solo cadenza that became a hallmark of his concerts), and "A Weaver of Dreams." The album closers with Kenny Clarke/Dizzy Gillespie's "Woody 'N' You," the Gershwins' "But Not for Me," and Todd Dameron's "Lady Bird." Stretching out for more than 15 minutes on each tune, Newk (Rollins) and Klook (Clarke) nudge one another with a subtler and tighter rhythmic communication than Rollins established with La Rocca or Harris.

Freedom Weaver is not an ideal introduction to Sonny Rollins for new listeners, but it is essential for Rollins completists and anyone interested in taking a deeper dive into the development of one of the all-time greatest jazz saxophonists and improvisers. tas

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Fauré: Complete Music for Solo Piano

Exploring Light and Shade with a Unique Instrument

Randall Couch

Among new releases for this year's centenary of Gabriel Fauré's death, maverick French pianist Lucas Debargue's *Fauré: Complete Music for Solo Piano* stands out. Debargue's program commands attention for several reasons. First is the music itself. Fauré's brilliant output for piano has received only a handful of complete traversals. This is the first, to my knowledge, to present it largely in order of composition rather than in sets by formal genre (nocturnes, barcarolles, preludes, etc.) with single pieces arbitrarily interspersed. Furthermore, Debargue has chosen a striking and unique instrument to realize his sonic vision. But it's the quality of his pianism and the scope of his readings that animate and ratify these choices.

Jean-Michel Nectoux subtitled his biography of Gabriel Fauré *les voix du clair-obscur* (the voices of chiaroscuro). Applied to the piano works, the phrase evokes their kinship to song, the plurality of their effects, and especially their painterly contrasts of light and shade. How a performer understands the nature of chiaroscuro is a pretty good predictor of how they will interpret these pieces; how listeners understand it will govern their responses.

Fauré's music resists the typical early-middle-late periodization, even as it bridges the late Romanticism of his youth and the modernism of the second Viennese school. His first works for piano are usually described as "charming" and they are, but already they show the syncopations, unorthodox harmonies, and long lines that persist with increasing sophistication throughout his career. Thus it's satisfying to hear the compositions in chronological order. To listen in isolation to a set of nocturnes or barcarolles, to which he added over decades, is like watching a time-lapse sequence of a blossom opening—lovely and informative but also reductive. Even those genre titles were affixed at his publisher's insistence; Fauré would have preferred simple numbers. Factors such as his progressive hearing loss from middle age are often used to explain supposedly withdrawn or emotionally turbulent qualities in certain works and to fit them into a "period." But Fauré was widely recognized as the most advanced composer of his generation, a man who radically reformed the hidebound Paris Conservatoire under his leadership. While doubtless affected by events, his technical innovations and musicianship don't require armchair psychologizing.

Debargue, who has played many concert pianos, selected the Opus 102 model from French maker Stephen Paulello for his Fauré. This piano, besides having extra keys at both ends of the gamut, combines historical and novel features not previously found together, including barless construction, parallel stringing, and custom nickel-plated strings. The result expands the piano's range of contrast in all dimensions: dynamic power and delicacy, clarity across registers, degree of resonant sustain, and variety of tone color. As Debargue says, it allows him to switch instantly from "a velvety sound to something more acidulous." This chameleon-like sonority disoriented him on first hearing even as it excited him. Listeners may feel something similar hearing the bell-like purity (no plinking) of treble ornaments that "crown the [Barcarolle #3] theme like sea foam" (Marguerite Long) and the faultlessly clear fundamentals of deep bass notes that purr when caressed and snarl when struck hard.

Which returns us to chiaroscuro. Faure, ambidextrous and comfortable on an organ's multiple manuals, wrote difficult music for the piano (Liszt famously said "I've run out of fingers!"). At the same time, he disliked virtuosic display. Jean-Philippe Collard's 1974 cycle, long a standard choice, is obediently understated, like an Ingres drawing: each delicate line correct with only enough shading to outline the figure. The dry French EMI recording follows suit. Debargue's readings, in contrast, evoke Caravaggio: bright highlights emerging from profound shadow and punctuated by intense points of color (compare them in the famous Nocturne No. 6 in D-flat Major, where the score specifies rapid shifts between *pp* and *ff*, or the nine Preludes of 1910–11). Sony's spacious recording is challenged in places by the huge resonance of the Opus 102. Kathryn Stott's fine 1995 cycle lies somewhere between, with familiar Hyperion sound, and Jean-Claude Pennetier's traversal for Mirare from 2009–2018 is also admired by some pianists. Like Rubinstein (a very different personality), Debargue is more concerned with shaping phrases than perfectly placing every note, though his formidable technique renders Fauré's passionate swirls as convincingly as his delicate songlines. Not to all tastes in every piece, perhaps, but the cycle consistently reminds us that the world of Fauré's piano music, like that of his influences Chopin and Schumann, extends far beyond the salon. tas

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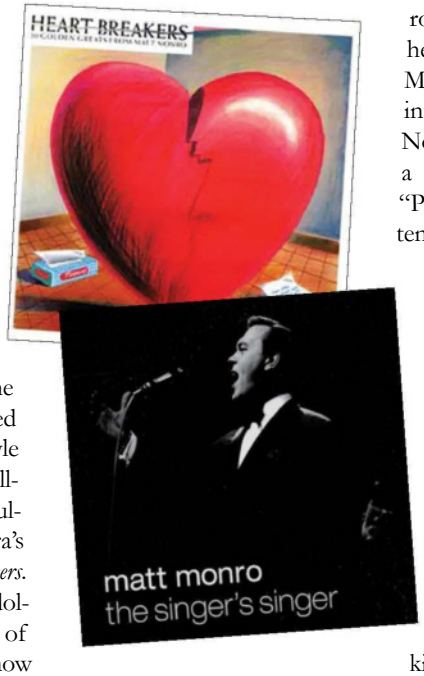
When Fred Flange Begat Matt Monro

Pop Crooning on an Elevated Plane

David McGee

Given today's cultural climate, and the passage of time and trends, the mention of Matt Monro's name might reasonably elicit a response such as, "Matt who?" No matter that in his native U.K. he is still remembered fondly as "the singer's singer" and "the British Sinatra," 39 years after his death, at age 54, on February 7, 1985. Even fewer among us would recognize the name "Fred Flange," but without Fred Flange there is no Matt Monro. And for Great American Songbook aficionados, absent Matt Monro there would be, to paraphrase the evocative 1937 torch song written by Mack David and Harry Revel, a lull in our lives.

By 1959, Matt Monro (born Terence Parsons on December 1, 1930, and raised in poverty in London's Shoreditch district) had been recording unsuccessfully for three years, first for Decca and then Fontana, when an unexpected phone call changed everything. On an otherwise unremarkable day, when Matt confessed to being "in the doldrums" over his failing career, George Martin, the formidable producer-arranger-composer-conductor running the Parlophone label (before he became the Fifth Beatle), invited him to record a song in the style of Frank Sinatra for a Peter Sellers album satirizing the pop culture lifestyle extolled on Sinatra's acclaimed *Songs for Swinging Lovers*. An association with Sellers, idolized in Great Britain as part of the surreal *Goon Show* and now expanding his career into film and music, seemed too good to be true. Unfortunately, it was: Martin informed Matt of Sellers' insistence on his Sinatra soundalike performance being credited to a fictitious Fred Flange. Matt fumed at being denied his hard-earned identity, but his wife, Mickie, encouraged him taking the gig by pointing out, "You never know what might happen—Parlophone is a big company." Behind every great man is a great woman, no?



As Fred Flange, Matt seized his moment, offering casual grace and *joie de vivr*e through the upbeat "You Keep Me Swinging," evoking Sinatra in timbre and phrasing while hewing to the smooth Monro style he had been honing in obscurity for nearly a decade. Upon its release in 1960 *Songs for Swinging Sellers* was a big hit both critically and commercially, peaking at #3 on the U.K. Albums Chart and for Sellers inaugurating an astonishingly productive decade, especially in film. It also launched Fred Flange as Matt Monro when Martin, having heard something unique in Matt's style, brought him into Abbey Road Studios in November 1960 to record a sumptuous love ballad, "Portrait of My Love," written by Norman Newell and Cyril Ornadel, arranged and conducted by Johnnie Spence, a Martin favorite. The soft, swooning strings wafting in on a descending arc tugged at the heart immediately, and when Matt entered, tenderly, sensitively, masterfully exploring the theme of romantic devotion, with a killer pause between "For nobody" and a near-whispered "Could paint a dream," he rendered listeners mute and helpless. The single spent 16 weeks on one U.K. chart, peaked at #3 on another, and Matt Monro was on his way to selling 23 million records worldwide in his lifetime. More to the point for Matt, his relationship with George Martin would continue into the 70s, producing one classic after another, including a breathtaking example of lyrical and musical perfection in his second and last U.S. hit, 1965's mysterious Don Black-penned breakup ballad, "Walk Away." His was pop crooning on an elevated plane, marked by nuanced phrasing vividly revealing his songs' emotional underpinnings, rendered with enveloping stylistic majesty in the synergy between timbre, intent, phrasing, and arrangements.

In tone and texture, the Monro voice bore some uncanny similarities to Sinatra's, but the greater similarity was in his respect—nay, demand—for songs of lyrical substance with compelling narratives to challenge his interpretive skills, and in his courage to plumb the very fiber of his being for those Wordsworthian shadings articulating "Thoughts that do often lie too deep for tears." His must-have anthology album is titled simply *Heartbreakers* (first song: "Portrait of My Love"), and no better one-word summation of his entire catalogue could be had. But the motherlode, the *ne plus ultra* of Matt Monro's expansive recorded legacy, is the four-CD set, *The Singer's Singer*, containing 100 songs ranging from the 60s into the 80s, including all the George Martin-produced sides. Behold the heart of the matter when it comes to the most resounding affirmative response to the puzzlement, "Matt who?" tas

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Daniel Bachman's Homemade Musical Experiments

Merging Handcrafted Instruments and Electronics

Hannah Blanchette

The experimental musician and independent scholar talked with me about his most recent record, the threads between his music, climate change activism, and Virginia's folk history, and the current folk recording preservation landscape.

The second we hopped on a call, the first aspect of Daniel Bachman's personality I noticed was his passion and sincerity. He immediately thanked me for taking the time to discuss his most recent album, *When the Roses Come Again* (2023). I told Bachman that he took the words right out of my mouth.

Daniel Bachman is a musician, artist, and independent scholar of Virginia's folk histories. He has been releasing solo studio albums under his name since 2011, with *When the Roses Come Again*, out on Three Lobed Recordings, marking his 17th release. Bachman's albums are known to blend elements of instrumental folk, drone, and field recordings, taking an experimental approach to instruments such as the acoustic guitar, banjo, and lap steel. Bachman and I had a chance to discuss the recording process of *When the Roses Come Again*, his research into Virginia's folk histories and local recording preservation, and how climate change activism intersects with his past music and his work to come.

The recording process of *When the Roses Come Again* brought Bachman right to the edge of the Shenandoah Valley National Park in Virginia, which includes a portion of the Blue Ridge Mountains. Bachman's coworker recommended him as a carpenter's assistant for his dad's little house in the mountains. Bachman returned to the cabin for a week and a half to record *When the Roses Come Again*. While there, Bachman spent his entire days playing his instruments and taking walks, hoping to create as much source material as he could for the basis of the record.

This continuous style of playing and recording at the cabin foreshadowed the structure of the finished album, which has an uninterrupted flow from one track to the next, to the point that Bachman himself even scratched his head a bit to remember which tracks were which. "Sometimes I felt the track breaks traditionally in records that I have made have really lessened the effect of some of the stuff I was going for," he said. "And with the cyclical flow of this new record, this was one that would really benefit from trying to weave all of those pieces together."

When reflecting on how he crafts these long-form compositions, Bachman said, "I've worked with wood before, professionally, and it does have the same kind of feel as molding or sculpting." Beyond carving and shaping the music, Bachman literally took to instrument building for this record as well. He crafted a mouth bow since he had the materials already at his disposal, experimented with an $80 Korean aluminum banjo, and made homemade alterations to contact mics. Using a small budget, Bachman builds instruments to explore new sounds and bring his folklore influences to the fore of his process. "A lot of the sounds that are on this record especially are in that haphazard style," he said. Outside of handcrafted folk instruments, much of Bachman's electronics featured homemade elements as well, such as his creative implementation of contact speakers and hacked phone apps to create feedback and delay.

This homespun, folk approach to experimentation is not only at the core of what Bachman does musically, but also to folk music more broadly. We discussed how creative and experimental folk music has been historically, even connecting to his family lineage that inspired *When the Roses Come Again*. The Hostetler Blind Family Band, a mid-19th century touring string band from the Alleghany Mountains, dates back to Bachman's mother's side of the family. Along with writing their own music and using idiosyncratic instrumentation, the band even used corncobs as percussion instruments.

"I think that the recorded record industry in the 1920s and 30s solidified a way people think about country music," Bachman stated. "Experimentation and interaction between all different types of cultural backgrounds is a huge part of early country music. Early American country music has its roots in as much of traditional Hawaiian cultures as it does in North American indigenous stuff, or West African music or European music. We're constantly exploring and experimenting."

Bachman's recent scholarly pursuits have brought him into how the histories of Virginia intersect with the music created in those communities historically, folk recording preservation, and climate activism. He is incredibly invested in bringing the music of local communities back to their descendants, along with highlighting the ties between that music and the histories of the communities.

One way of achieving this goal was through his involvement with the University of Virginia's community project of aluminum disc record preservation, an at-risk format that was originally recorded with a reed thorn needle. These discs contained 800 tracks of the earliest folk and ballad recordings in Virginia. After a laser took photographic images of the discs, the recordings were converted into WAV files and preserved. This work has aftereffects beyond the preservation it serves for the history of folk music. Bachman recalled being able to bring a preserved recording to a family reunion to share their grandmother's singing. He states that the future of folk music preservation also includes uncovering the vast amounts of materials in archives and family collections, as well as using mindful collection methods.

Climate activism is also a significant aspect of Bachman's work, both past and present. On his previous record, *Almanac Behind* (2022), he composed with field recordings of storms to comment on the effects of climate change on weather patterns and prediction. Last year, Bachman witnessed a large, 25-day wildfire six miles from his home. He took photographs of the fire and used a computer program to convert the photographs into WAV files, creating an audio documentary of the damage rendered by climate change. The variation in the color of the sky and the amount of smoke can even be heard in this audio representation. This work is an upcoming track for Longform Editions, and Bachman hopes to work more with this technique to explore the local effects of climate change.

I left our conversation exhilarated. Daniel Bachman is an artist that puts his whole self into his creations and research, showing how the different facets of what make up an artist, a person, can form an intricate, interconnected tapestry. tas

R.E.M.'s *Up* Turns 25

New Deluxe Edition Spotlights a Period of Transition

Greg Gaston

Every great band faces an idenity crisis at some point. Often, when a founding member leaves, the remaining bandmates must reconfigure their sound anew. This can lead to amazing results and a new direction for a group—or, more often, disaster. To their credit, when R.E.M. recorded their 11th album, 1998's *Up*, in spite of a personnel change, the band was able to radically reshape their sound and deliver one of the best records of their iconic career. Recently Craft Recordings released a two-disc boxset treatment of *Up* that features the remastered original 14-song track list plus a second disc of an intimate live rehearsal/concert recorded for the 90s TV show *Party of Five* as well as extensive liner notes by Josh Modell, lyrics, and a poster. The expanded boxset deepens the sense that, with *Up*, the band attained the same high standard as before at the same time that it explored new territory.

Formed in Athens, Georgia, in 1980, R.E.M. consisted of Michael Stipe (vocals), Peter Buck (guitar, mandolin), Mike Mills (bass), and Bill Berry (drums). Berry collapsed from a ruptured brain aneurysm in 1995 while on tour; two years later, he left the band to retire on a farm in Georgia. This triggered a crisis of confidence for the three other bandmates, with the group's future suddenly in question. Ultimately R.E.M. chose not to replace Berry, but instead used drum machines, session drummers, and keyboards. Recorded in San Francisco's Toast Studios, Up was produced by R.E.M. and Pat McCarthy. Nigel Godrich, who produced *OK Computer* and Radiohead's more recent records, mixed the album. The sound of the band had definitely changed since their earlier studio projects. Peter Buck's jangly Byrds-ian guitar chime was less prevalent, and Michael Stipe's previously blurry vocals came through with more clarity.

Somehow, during a phase where other bands might choose to play it safe, R.E.M. crafted the most experimental record of their career. The opening "Airportman" and its burbling, ambient synths immediately slip us into a different R.E.M. soundscape and set up the electronic undertow pulsing through many of the songs. These sonic textures anticipate Radiohead's move into a similar sound with *Kid A* a few years later. This makes prescient sense, considering Thom Yorke has often mentioned his love of R.E.M. and their influence.

_Up_ glimmers with a dark, moody beauty that reaffirms R.E.M.'s brilliance.

"Hope," an early highlight based on a Buck demo, crackles with a lo-fi, industrial bass/drum and synth loop, as Stipe returns to a favorite lyric theme, religion vs. science and the role of spirituality. With his honey grain tenor, he incites with, "You want to trust religion/And you know it's allegory/But the people who are followers/Have written their own story." Leonard Cohen gets a co-writing credit, as Stipe wrote the lyrics to the melody of "Suzanne."

"Daysleeper," the first single and most quintessential R.E.M. song here, breezes by with lush, arpeggiated verses. "Sad Professor" breathes deep with reverbed acoustic guitar echoing Stipe's character tale of alcoholic regret, a resonant hymn of resignation. "I hate where I wound up," Stipe concludes the song.

"At My Most Beautiful," "Why Not Smile," and "I'm Not Over You" share an air of melancholy pop bliss. With its fragile, gorgeous melodies, "Beautiful" could be a lost classic from the Beach Boys' *Pet Sounds*; its rising bass/piano counterpoint is reminiscent of prime Brian Wilson, and it may just be one of R.E.M.'s first true love songs.

With the live disc, you can sense R.E.M.'s relief in rocking out in front of an audience. Stipe jokes about their former drummer, responding to a fan, "Bill's doing great—he's really happy to not be here right now." They are here to entertain not provoke. Several *Up* tunes are included, like the anthemic "Walk Unafraid," which may have been their credo for this whole project. But from Buck's opening power chord crunch of "What's the Frequency, Kenneth?" to the apocalyptic, hopeful "It's the End of the World (And I Feel Fine)," R.E.M. flash their charismatic mettle with this loose, feisty performance.

R.E.M. would go on to make five more studio records in the wake of *Up,* before finally breaking up in 2011, but the band would rarely rise to these songwriting heights again. *Up* may embody the definition of a difficult, transitional record in many ways, but it also glimmers with a dark, moody beauty that reaffirms R.E.M.'s brilliance. tas

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MUSIC ●●●●◐ SONICS ●●●●○

Sleater-Kinney: *Little Rope.* Loma Vista.

With Sleater-Kinney guitarists and vocalists Carrie Brownstein and Corin Tucker at the helm, *Little Rope* finds the esteemed punk and indie outfit of 30 years returning to a massive, distorted sound reminiscent of their early 2000s records such as *The Woods* (2005), while continuing synth elements that were introduced on *The Center Won't Hold* (2019). The album's standout tracks are those which harken back to their signature angularity, such as "Hunt You Down." Starting with swaggering riffs equally matched by Brownstein's verse vocals, the track evolves into a perfect combination of catchy melodies, sinuous electronics, and layers of windy counterpoint. The center tracks of the record are the strongest stretch, with "Hunt You Down" followed by the jittery "Small Finds" that's driven by Tucker's slinky vocals, the musically upbeat downer "Don't Feel Right," and the pulverizing noise of "Six Mistakes." The dance-inflected songs on the album stimulate interest as well, such as the jagged power-pop of "Needlessly Wild" and the coasting four-on-the-floor of "Crusader." *Little Rope* presents Sleater-Kinney at a crucial juncture where they are processing grief, honoring the distinctive sounds of their past, and bringing in new colors to their sonic palette that carry them into their future. **Hannah Blanchette**

Further Listening: Sleater-Kinney: *The Woods*; Big Joanie: *Back Home*; Screaming Females: *All at Once*

MUSIC ●●●●○ SONICS ●●●●○

Marika Hackman: *Big Sigh.* Chrysalis.

On her first album since 2019, English singer-songwriter Marika Hackman embraces a more serious and darker tone, delivering a sonically mature album that features some of her best writing to date. The production on *Big Sigh* is slick, concise, and intentional, leaving behind Hackman's younger, grittier years while allowing space for these emotionally complex songs to settle. Though overall *Big Sigh* is more down-tempo than her other releases, the pacing, when combined with unpredictable arrangements, works to elevate each individual song, and the diversity in the instrumentation—like pairing synths with acoustic instruments such as piano or horns—transforms quiet, simple tunes into moving works. While *Big Sigh* may not be Hackman's most creative album lyrically, the delivery and setting of those lyrics is still effective and biting. The glitchy opener, "The Ground," draws you in immediately before shifting gears into the driving "No Caffeine." Hackman skillfully winds down each track before arriving at the hauntingly devastating "Hanging" only to bring it back up and deliver a satisfying payoff with the erotic earworm "Slime." It's clear Hackman has grown as a person and as a writer, and *Big Sigh* is a testament to her commitment to the craft and an exciting sign of what more is to come. **Jerika Hayes**

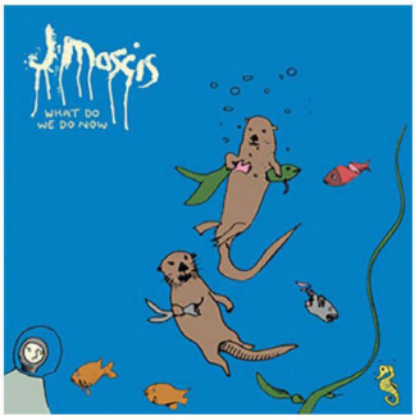
Further Listening: Daughter: *Not to Disappear*; Adrianne Lenker: *songs*

MUSIC ●●●◐○ SONICS ●●●●○

Jolie Laide: *Jolie Laide.* Oscar Street.

File under: Dark Cinematic Rock. Singer and songwriter Nina Nastasia is a restless soul. She's also a survivor. This eponymous debut album from her new duo finds the 57-year-old New York City folkie searching for serenity in the memory of carefree days spent cruising the California coast ("Pacific Coast Highway"), looking back at a reckless life on the road ("Move Away Towns"), tallying the toll of a toxic relationship ("Blue Is Blue"), and musing on the distance of a former lover ("Isolation View"). On sparse dirges roiling with emotional turbulence, she croons languidly while guitarist Jeff MacLeod cloaks her moodiness in dark, reverb-drenched twang. "I say we're in for a long night stay/Drinking us thin 'til we both fade away," she sings on the confessional "Why I Drink." Nastasia doesn't pull punches. And this is hardly her first rodeo—she had built a cult following in the 1990s and 2000s, attracting such high-profile fans as John Peele and Steve Albini. After 2010's *Outlaster*, she dropped from view, only to return in 2022 with the Albini-produced *Riderless Horse*, following the suicide of her longtime partner Kenan Gudjonsson. That stormy period informs such songs as "God of Gamblers" and keeps it real. Cinematic and real. **Greg Cahill**

Further Listening: Nina Nastasia: *The Blackened Air*; The Cape May: *Central City May Rise Again*



MUSIC ●●●●○ SONICS ●●●●○

J Mascis: *What Do We Do Now.* Sub Pop.

For all the slacker vibes he exudes, J Mascis has built a dynamic career between his role as Dinosaur Jr.'s guitarist-singer-songwriter and his solo acoustic projects. While Dinosaur Jr. have been launching their blistering brand of post-punk/alternative guitar squall for almost 40 years now, his solo work draws the volume down considerably without sacrificing the emotion and the edge of Dinosaur Jr. His fourth solo studio release, *What Do We Do Now*, is reminiscent of his previous solo work, but overall it's even more melodic and yearning, and it may be the best of the bunch. Mascis' laconic drawl and minor key arrangements infuse these songs with pockets of melancholy. For "Can't Believe We're Here," the opener (and template for many of these songs) Mascis nestles tracks of warm acoustic guitar over drums and bass and rigs until his electric guitar raises the intensity level considerably. The only accompanists, Matthew Dunn (pedal steel) and Ken Maiuris (piano), bring muted shades of poignance to ballads like "I Can't Find You" and "You Don't Understand Me." If Dinosaur Jr. in all their noisy glory overwhelm some listeners, Mascis' solo material finds the sweet spot between crunch and melody. **Greg Gaston**

Further Listening: Jesus & Mary Chain: *Darklands*; The War on Drugs: *Lost in the Dream*

MUSIC ●●●●○ SONICS ●●●●●

The Nick Moss Band: *Get Your Back into It!* Alligator.

From Pierce Downer's adrenaline-fueled drum roll kicking off the festivities in "The Bait in the Snare" to the robust twang of Nick Moss' surf guitar driving the instrumental album closer, "Scratch 'N' Sniff," the Nick Moss Band featuring harmonica master Dennis Gruenling returns in merciless fashion on *Get Your Back into It!* With energy unflagging, the band roars through blues touching down in Chicago, Texas, and West Coast styles over the course of 12 Moss and two Gruenling originals. The hard-charging jump of "The Bait in the Snare" finds Moss offering guidelines on avoiding corrosive temptations as he and Gruenling underscore the message's urgency with searing solos. Hitting a Texas groove on "Choose Wisely," Taylor Streiff sets a honky-tonk vibe to work on piano, guest Gordon Beadle roars on sax, and Gruenling wails on harp as Moss emphatically declares: "You can change your course/ Or live a life of remorse." Apart from the messaging herein, the band can and does change course, without remorse, on the aforementioned surf instrumental and another, "Out of the Woods," led by "Brother" John Kattke's robust organ and Beadle's honking sax, reminiscent of late 40s-early 50s small combo swing. Louis Jordan would love it, so why not you? **David McGee**

Further Listening: Duke Robillard & Friends: *Blues Bash*

MUSIC ●●●●○ SONICS ●●●●○

Bob Margolin: *Thanks.* VizzTone.

In celebrating 50 years since he made his debut as the second guitarist in the Muddy Waters band, "Steady Rollin'" Bob Margolin deployed the same 1956 Gibson Archtop ES-150 electric guitar to play on *Thanks* that he used when he joined Muddy a half-century ago. The telling album title is an expression of Margolin's gratitude to Muddy as are six songs he either played or recorded with Muddy (written by Muddy, Willie Dixon, Paul Gayten, Robbie Robertson, and Jimmy Rogers). Four Margolin originals round out a 10-track setlist featuring Margolin as one-man band-producer-engineer-mastering engineer. *Thanks* being an outpouring of straight-ahead Chicago blues comes as no surprise, nor does the expressive power of Margolin's slide guitar paired with his gritty, muscular vocals. The sheer, howling force of "Lonely Man Blues," a Margolin original wherein slide and voice become one, brings chills, much as the verisimilitude of the autobiographical "No Consolation" startles with its eerie slide wails punctuating a frank account of personal decadence and redemption. But throw in light, heartfelt touches such as Gayten's jazzy, strutting "For You My Love," and the Steady Rollin' man serves up real life in multiple dimensions, as the blues is wont to do. **DM**

Further Listening: Gary Moore: *Back to the Blues*; Muddy Waters: *Hard Again*

MUSIC ●●●●◐ SONICS ●●●●◐

Béla Fleck: *Rhapsody in Blue.* Thirty Tigers.

Banjo virtuoso Béla Fleck has spent his career defying all the stereotypes associated with his instrument. The breadth of his recorded output over the years has been staggering, ranging from contemporary jazz with his band the Flecktones to duets with Chick Corea, and collaborations with tabla master Zakir Hussain, Malian kora master Toumani Diabate, gospel's Blind Boys of Alabama, and funkateer Bootsy Collins. Fleck once again boldly takes the banjo well beyond the realms of bluegrass in tackling George Gershwin's enduringly popular *Rhapsody Blue.* And the results are pulse-quickening. Since Gershwin's masterwork logs in at just under 19 minutes, the wily banjoist augmented his faithful rendition of *Rhapsody*, performed with the Virginia Symphony Orchestra (under the direction of Eric Jacobsen), with clever variations on the original. And so we get "Rhapsody in Blue(grass)," a breakneck hoedown performed with super-pickers from his My Bluegrass Heart band, and the down-home "Rhapsody in Blue(s)," featuring Nashville studio aces Jerry Douglas on dobro and Sam Bush on mandolin, along with his Flecktones bandmate Victor Wooten on electric bass. Two solo banjo pieces performed by the ever-intrepid Fleck and written by maestro Gershwin are intricate, added gems. **Bill Milkowski**

Further Listening: Bela Fleck: *The Ripple Effect*; Bela Fleck/Chick Corea: *Two*

MUSIC ●●●●◐ SONICS ●●●●●

Vijay Iyer: *Compassion.* ECM.

A continuation of the rapport established on 2021's *Uneasy*, Iyer's eighth ECM outing finds him going even deeper with bassist May Han Oh and drummer Tyshawn Sorey, both composer-bandleaders in their own right. Their chemistry is apparent from the opening rubato title track to the exhilarating closer, an energized take on John Stubblefield's hypnotic "Free Spirits" that morphs into Geri Allen's "Drummer's Song." Iyer's playing ranges from rhapsodic ("Compassion") to ecstatic (a pulsating 6/8 rendition of Stevie Wonder's "Overjoyed") to kinetic ("Arch," a driving number fueled by Oh's deep-toned upright bass lines and rampaging solo). The dynamic Sorey summons a percussive fury on the kit on the aptly named "Maelstrom," then demonstrates ultra-sensitive brushwork on the radiant and meditative "Prelude: Orion." And he puts up the funk on syncopated numbers like "Ghostrumental" and "Tempest," the latter a catchy tune with an intricate head recalling Eddie Harris' "Freedom Jazz Dance." "Panegyric," written for victims of the Covid-19 pandemic, starts off solemn and builds to celebratory heights while showcasing Oh's melodic improvising skills along the way. The trio's take on Roscoe Mitchell's "Nonaah" is an adrenaline burst of free jazz while Iyer's unaccompanied "It Goes" is a calming breath in the proceedings. **BM**

Further Listening: Vijay Iyer Sextet: *Far from Over*; Vijay Iyer Trio: *Wiring*

MUSIC ●●●●◐ SONICS ●●●●◐

Hilary Gardner: *On the Trail with the Lonesome Pines.* Anzic.

Jazz fans may well recognize silky-voiced Hilary Gardner as a founding member of the close harmony trio Duchess, twice named Vocal Group of the Year by the Jazz Journalists Association (JJA). On her new solo project, *On the Trail with the Lonesome Pines*, Ms. Gardner takes a bit of a different tack by emphasizing the intimate connections between jazz and western songs. Backed by the superb Lonesome Pines trio, she swings, sways, and swoons through a dozen vintage western-oriented chestnuts referencing both the cowboy's solitary way and its inseparable connection to the natural world's allure, romance, and poetry. What has jazz to do with any of this? Consider that Frank Loesser co-wrote "Jingle Jangle Jingle (I Got Spurs)," here given a jaunty shuffle with Justin Poindexter adding a tasty Les Paul-like guitar solo to the proceedings. Benny Carter and Gene DePaul penned the lyrics to Ellla Mae Morse's 1942 million-selling "Cow Cow Boogie," appropriately rendered with a frisky, sultry swing. But especially on beautiful ballads (notably the languorous "Twilight on the Trail," dating from 1936), Ms. Gardner's delicate, winsome approach rises into an exalted realm of feeling and experience common only to the finest interpretive singers. Saddle up! **David McGee**

Further Listening: Michael Martin Murphey: *Cowboy Songs Four*

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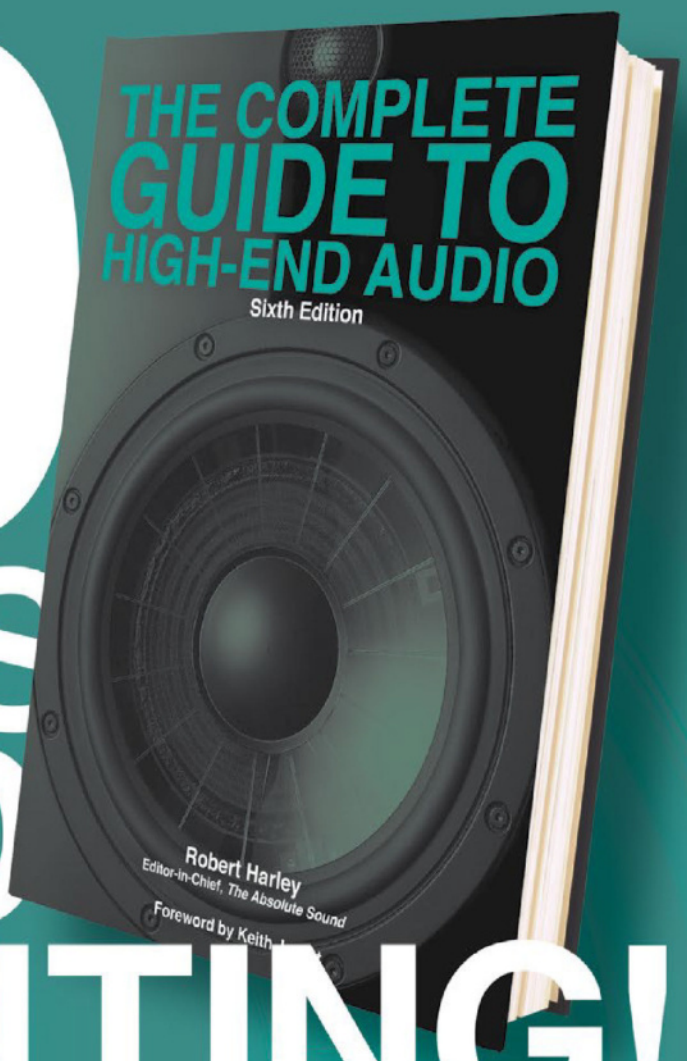

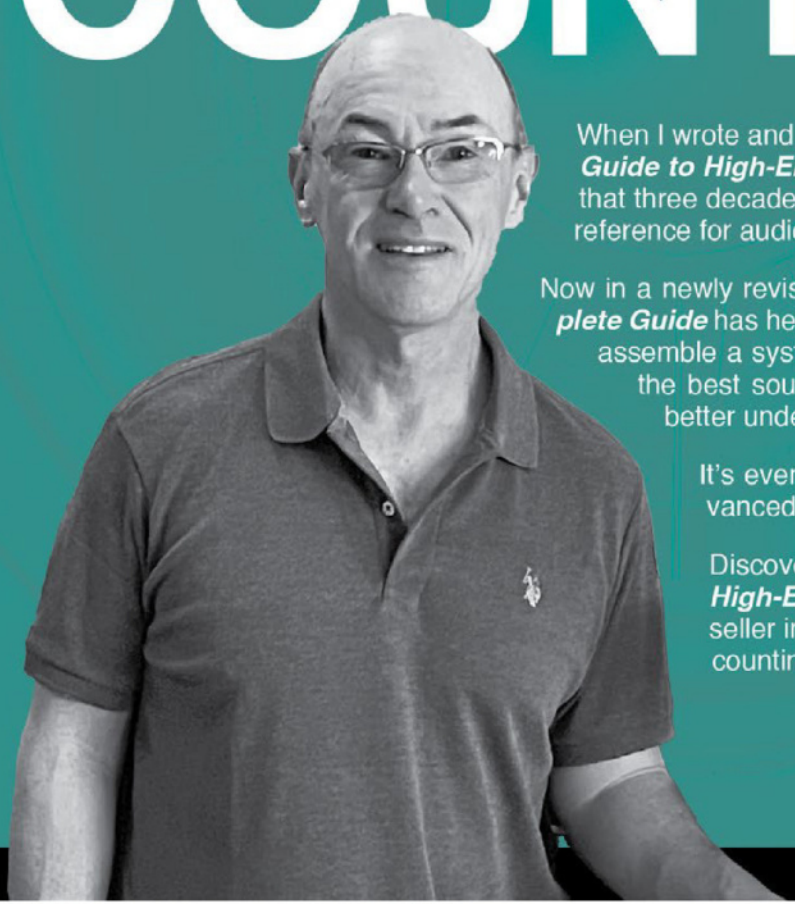

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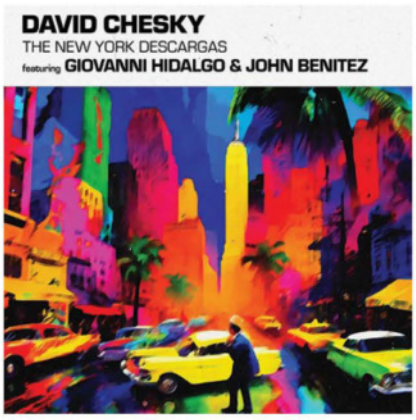
MUSIC ●●●●● SONICS ●●●●●

Duke Ellington and His Orchestra: Ellington Indigos. Columbia/Impex (2 45rpm LPs).

It's a rainy early evening in January, and I'm sipping a martini and spinning an Impex 45rpm test pressing of Ellington's *Indigos* LP. Before you read any further, drop this review and order a copy before it's too late—it's one of the best things I've heard in a while. A musical gem, a sonic knockout. Originally released in 1958, *Indigos* is a gorgeously moody collection of tunes. Ellington's unaccompanied piano intro to "Solitude" shows an exceptionally natural sound, with great studio ambience. When the band rolls in there's a thrilling dynamic kick and musical pizzazz to die for—rich, throaty brass, silky strings. On "Where or When" you'll hear the alto soloist breathing as he plays; on "Mood Indigo" the full orchestra really fills the room, extending wall to wall, front to back, and also in height, with an uncanny illusion of the players on a tiered bandstand, quite life-sized too. Then there's the nimble, walking bass lines, the dreamy sounding clarinet, floating in space, just so "there." Impex has a fine 33 version of this title, but this one marking the title's 65th anniversary smokes it. The release includes a 16-page booklet with new liner notes and never seen photos. What a record! **Wayne Garcia**

Further Listening: Charles Mingus: *Mingus Mingus Mingus Mingus Mingus*; Johnny Hodges: *Used to Be Duke*



MUSIC ●●●●○ SONICS ●●●●●

David Chesky: ***The New York Descargas.*** The Audiophile Society.

Pianist-composer-arranger and devoted audiophile David Chesky weds modern 21st-century classical harmony with Afro-Cuban music on his latest trio offering. Picture Eddie Palmieri with ears for Schoenberg, Berg, and Webern. Accompanied by bassist John Benitez and legendary *conguero* Giovanni Hidalgo, Chesky bridges the gap from the streets of Havana to the concert halls of New York with music that grooves as it challenges convention. "Descargas No. 4," underscored by Hidalgo's churning conga work and Benitez's deep-toned tumbao groove, seems as informed by descarga/mambo master Israel Lopez Cachco as Chesky's angular lines are informed by Eddie Harris' "Freedom Jazz Dance." Other pieces like "No.1," "No. 5," and "No. 8" keep that hypnotic groove happening while Chesky layers dissonant chord voicings and odd intervallic leaps on top. It's an unexpected juxtaposition that works. Hidalgo is turned loose for some conga pyrotechnics on "No. 7" while danceable tracks like "No. 2" and "No. 6" are fueled by the spirit of mambo. *The New York Descargas*, like all releases on Chesky's The Audiophile Society label, brings a realistic three-dimensional quality to listeners via the trademarked Mega-Dimensional Sound. **BM**

Further Listening: Café: *Espírito da Floresta Amazônica*; David Chesky: *The New York Chorinhos*

MUSIC ●●●●◐ SONICS ●●●●○

Pharoah Sanders: ***Pharoah.*** Luaka Bop (LP).

Before he died in September 2022 at 81, tenor saxophonist Pharoah Sanders was top of mind thanks to his final album, *Promises*, made with Sam Shepherd (aka Floating Points). Luaka Bop then decided to reissue the coveted 1977 album *Pharoah*. The new LP is packaged with a second vinyl disc of two previously unreleased live versions of the signature piece "Harvest Time," a selection of artifact reproductions, and a 24-page booklet. The concert performances, in which Sanders blows ecstatically in a quartet with bassist Hayes Burnett, drummer Clifford Jarvis, and keyboardist Khalid Moss, sound remarkably good—crisper, even, than the excellently remastered studio tracks. But the latter beguile with their idiosyncratic instrumentation and Sanders' cosmic/spiritual experimentation. On "Harvest Time," electric guitarist Tisziji Muñoz sets a two-chord vamp against which Sanders and bassist Steve Neil improvise, with Sanders' wife, Bedria, wafting in on harmonium, and Muñoz spooling out psychedelic threads. Drummer Greg Bandy, organist Clifton "Jiggs" Chase, and percussionist Lawrence Killian join for "Love Will Find a Way" and "Memories of Edith Johnson." Gospel-rooted vocalizing, plaintive sax, and eruptive guitar solos shift the vibe from atmospheric to testimonial. **Derk Richardson**

Further Listening: Tisziji Muñoz: *Divine Radiance*

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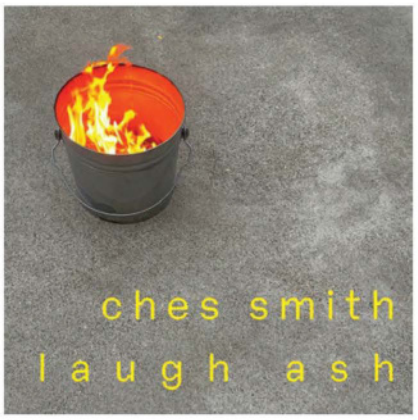

MUSIC ●●●●◐ SONICS ●●●●◐

Ches Smith: *Laugh Ash.* Pyroclastic.

Ches Smith, a drummer-percussionist-electronic musician, obliterates any conventional notion of jazz fusion on *Laugh Ash*. Over the course of nine pieces, each a canny example of musical conflict-resolution, he and his collaborators move from Smith's intricate compositional systems to spontaneous mutations of melodies and orchestrations, and demonstrate the unlikely compatibility of such disparate inspirations as Steve Reich, Lou Harrison, Haitian Vodou music, Beethoven string quartets, vocal art music, and hip-hop. Like the way your brain makes disjointed dream scenes coherent, Smith creates an internal logic that unifies the separate instrumental groupings: strings (Jennifer Choi, violin; Kyle Armbrust, viola; Michael Nicolas, cello), winds and horns (Anna Weber, flute; Oscar Noriega, clarinets; James Brandon Lewis, tenor sax; Nate Wooley, trumpet), bass and keyboard sounds (Shahzad Ismaily), and miscellaneous percussion (drums, vibes, bells, machines, glockenspiel). Shara Lunon adds spoken word and ethereal voice effects. Repetitive beats and pulses, layered textures, and sonic flutters and flurries take you on an exhilarating romp from a hip-hop orchestra concert to an avant-garde chamber jazz recital to the weightless environment of a space station, never hinting at what might come next. **DR**

Further Listening: Joan Jeanrenaud & PC Muñoz: *Pop-Pop*

MUSIC ●●●●◐ SONICS ●●●●●

Gerald Cannon: *Live at Dizzy's Club: The Music of Elvin & McCoy.* Woodneck.

Drummer Elvin Jones and pianist McCoy Tyner, one-half of the classic John Coltrane quartet, are considered two of the greatest and most distinctive jazz practitioners of their instruments. Veteran bassist Gerald Cannon spent many years working with both, 14 years with McCoy and 9 years with Elvin. On his third self-release, Cannon gathered saxophonists Joe Lovano and Sherman Irby, trumpeter Eddie Henderson, trombonist Steve Turre, pianist David Kikoski, and drummer Lenny White to perform a tribute to these men at a NYC club named after another jazz great. The lone Cannon original, "Three Elders," is a beautiful ballad also dedicated to pianist Larry Willis, with whom Cannon had worked in Roy Hargrove's group. The two Elvin compositions, "E.J.'s Blues" and "Three Card Molly," are performed with the same energy and fire that Elvin's groups always brought. Highlights among the five Tyner compositions are his well-known ballad "Search for Peace" and the hard-swinging "Blues in the Minor." All of the players here are highly accomplished in their careers and on their instruments, the ensemble playing is tight, the solos grab your attention, and this is a fine-sounding live recording. A great release that confirms Cannon's status as a player and a leader. **Greg Turner**

Further Listening: Reggie Quinerly: *The Thousandth Scholar*

MUSIC ●●●●◐ SONICS ●●●●○

Derek Bailey & Paul Motian: *Duo in Concert.* Frozen Reeds (LP).

Here's an unexpected pairing that works amazingly well; guitarist Bailey, a founding father of European free improvised music, and drum master Motian, who made his name with Bill Evans and Keith Jarrett before going on to be an important leader in his own right. Two live recordings of their duo in concert turned up in Bailey's archive, and the Frozen Reeds label has released the best of these on LP, generously including a download card for a digital version of the entire second concert. But while the second concert is excellent, it is the first that really grabs the listener. Bailey fans especially need to hear this. His playing is often quite different from anything he ever did with other musicians, and rarely did solo. To say that Motian rarely has been heard in a comparable context goes without saying, but he certainly delivers, sounding nothing like other free-form percussionists, or anything other than himself. Both musicians like to build things up from almost rudimentary rhythmic patterns, and build they certainly do, to extended passages where we don't hear them as reacting to one another so much as magically both knowing where the next step will be and taking it together. For free improv devotees, a must. **Duck Baker**

Further Listening: Derek Bailey: *Guitar Solos, Volume 2*; Derek Bailey/Cyro Baptista: *Cyro*

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MUSIC ●●●●◐ SONICS ●●●●●

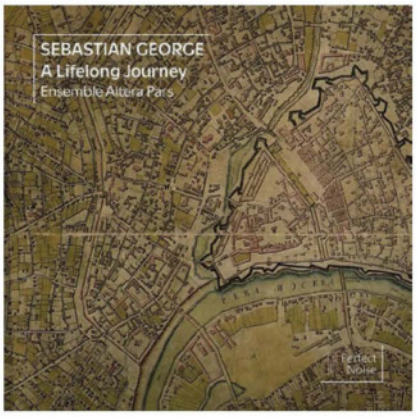
Gavin Bryars: *A Native Hill.* The Crossing, Donald Nally, conductor. Navona.

The music of British composer Gavin Bryars fits the sound of the acclaimed Philadelphia choir The Crossing like a silk glove. The collaboration between Bryars and The Crossing runs deep. His composition *The Fifth Century* was recorded by The Crossing (in collaboration with the Prism Quartet) on the ECM label in 2016 and won a Grammy (one of three that the ensemble has garnered to date). Several years later Bryars wrote a concert length work for unaccompanied choir, *A Native Hill*, specifically inspired by the distinctive individual artists of the group. Remarkably, the composition was not a commission, but an outright gift by the composer to the choir. The text is from the 1968 essay of the same name by the naturalist writer and activist Wendell Berry, a pantheistic ode inspired by his beloved Kentucky countryside. The composer excerpted 12 specifically themed passages to set to music. Like many of the composers that The Crossing works with, Bryars has had an eclectic career, including early lessons with John Cage, performing as a bass player in a jazz trio, and writing works for opera, dance, and chamber music. In 2015 he was named Transcendent Satrap by Le Collège de 'Pataphysique, an honor he shares with Marcel Duchamp, Man Ray, Eugène Ionesco, and Groucho Marx, among other gleeful iconoclasts.

A Native Hill was released in 2021 on the Navona label, in an excellent recording as engineered by Paul Vazquez, who is credited as the ensemble's sound designer. Given the exquisite precision that The Crossing artistic director Donald Nally routinely draws from his choir, it should not be surprising that he is also meticulous about the production values of The Crossing CDs. Thus, the opportunity to remaster the recording of *A Native Hill* to an even higher audiophile standard was extremely attractive. Obviously, The Crossing, like virtually every American fine arts institution, must budget every dollar with great care, and so the project seemed out of bounds, at first. An ensemble of audiophiles came to the rescue, corralled by TAS's own Andrew Quint. Andy was able to pull down financial commitments from manufacturers Acora, MC AudioTech, Haniwa, Theoretica Applied Physics, plus boutique dealer Doug White, NextScreen (the publishers of TAS), and some local audiophiles (himself included). The renowned engineer Dave McNair was brought on, who then produced vinyl remixes of the original recording on his cutting lathes in North Carolina. The production costs were fully covered, and any profits from the sales of the CD will be directed to The Crossing.

The end result is a very special choral recording. Bryars writes music that invites his listeners to pay attention to fine shading and intricate melodic structure. His marriage of sound and word is extremely precise, elegant, and thoughtful. Berry's writing has a rhythm that is very musical, which in turn inspires the subtle dynamic patterns of Bryars' composition. McNair's remastering of the original digital recording greatly enhances this experience, by adding a palpable sense of tonal depth and separation, as if you are looking into the throats of the 24 singers. Berry's own words, from the section titled *The Music of Streams*, captures the essence of this recording eloquently: "There is indeed a music in streams, but it is not for the hurried. It has to be loitered by and imagined." **Peter Burwasser**

Further Listening: Bryars: *Sinking of the Titanic* (Philips)



MUSIC ●●●●◐ SONICS ●●●●◐

George: A Lifelong Journey. Ensemble Altera Pars. Perfect Noise.

When the progressive monarchs of the Russian Empire decided to emulate the culture of Western Europe, they chose to import the talent rather than nurture native artists. Case in point, Sebastian George, a German composer who was hired by Catherine the Great to establish the musical styles of Moscow and St. Petersburg in the late 18th century. Apparently, he thrived there, teaching, writing and even operating a wine shop. This collection of six chamber music compositions can be characterized as uncomplicated work of the early classical era, and more Italian in flavor than German. He writes especially fluently for the flute (heard in four of the works), which in this case is a lovely sounding period wooden instrument. George's music is firmly in the gallant style of his time, which is to say that it is well-crafted but lacking in original melody or harmonic complexity. A good comparison is the lively, popular music of Luigi Boccherini, although the chamber music innovations of Haydn must have been an influence as well. There is nothing revelatory here, but the music is certainly enjoyable, and the period instrument Ensemble Altera Pars squeeze as much joy out of it as they can. **PB**

Further Listening: Boccherini: Guitar Quintets (Naxos)

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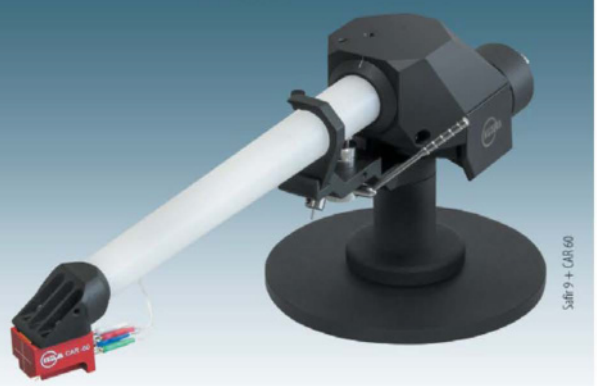

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Scarlatti: *Scarlatti Sonatas.* Metz. Navona.

Performances of the nearly 600 keyboard sonatas composed by Domenico Scarlatti (1685–1757) usually employ either a harpsichord, for which they were originally intended, or a modern piano. The pianoforte was a transitional instrument invented around 1700 that, unlike the harpsichord, gives a player the ability to vary the loudness of individual notes. The composer and entrepreneur Muzio Clementi (1752–1832) ran a company that built pianofortes and also cashed in on "piano-mania" by publishing a set of 12 Scarlatti Sonatas (two of which were not actually written by Scarlatti) intended for the square pianoforte, which soloist Charles Metz compares to "Henry Ford's Model T" because its low cost made ownership possible for many middle-class families. In practice, Metz's performances can seem plodding at times and one has to wonder about the responsiveness of a 200-plus-year-old instrument that was of modest quality to begin with. But the scale of the sonority produced seems exactly right and the soloist does take advantage of the greater expressive capacity of the pianoforte over the harpsichord by modulating dynamics. The gentle, almost fragile sound of the instrument, a specimen built by Clementi's company in 1806, comes through very well on Navona's recording, which was made at Skywalker Ranch. **Andrew Quint**

Further Listening: Soler: Sonatas (Schrader)

MUSIC ●●●●◐ SONICS ●●●●●

A Room of Her Own. Neave Trio. Chandos.

Here we have works for piano trio from four women, all written, or at least begun, when their composers were in their early twenties. The repertoire consists of Trio No. 1 by Cécile Chaminade (1857–1944); the Trio by Ethel Smyth (1858–1944); the Trio of Germaine Tailleferre (1892–1983), begun in 1916–17, but not finished until 1978; and two pieces—*D'un matin de printemps* and *D'un soir triste*—written in the last year of her life by Lili Boulanger (1893–1918), and assembled here under the title *Deux Pièces en trio*. All are well-crafted and worthwhile, particularly the two by Boulanger, which prove very effective in this configuration. The Chaminade is pleasant, occasionally veering toward sentimental. The Smyth, while very accomplished, sounds a bit *arrière-garde* in its heated argument and Brahmsian voicings and doublings. Later in life, Smyth would write more modern, and interesting, music. Chaminade would not. And Tailleferre? Well, until now, I've never heard a work that was 60 years in the making. Everything is well played by the Neave ensemble, and impressively recorded at Potton Hall in Sussex (the same venue as the group's Grammy-nominated *Musical Remembrances*), with a well-defined soundstage and excellent bass from the hall's Steinway D. **Ted Libbey**

Further Listening: *Her Voice* (Neave/Chandos); *Musical Remembrances* (Neave/Chandos)

MUSIC ●●●○○ SONICS ●●●○○

James Newton Howard: *Night after Night.* Sony.

The two greatest composer-director partnerships in movies are John Williams/Steven Spielberg and Bernard Herrmann/Alfred Hitchcock. James Newton Howard is not to be confused with Williams or Herrmann, but he and director M. Night Shyamalan, who certainly has his own identifiable style, have produced a significant body of interesting work. This recording contains music from *Signs*, *The Village*, *The Sixth Sense, Lady in the Water, Unbreakable, The Last Airbender*, *The Happening*, *After Earth*, and *Flow Like Water*. The music is invariably pleasant and accessible. The problem is that all of the works sound very similar, especially with the piano solos by Jean-Yves Thibaudet. That may be the reason why I think *The Village* with Hilary Hahn playing recurring violin arpeggios is the best of the suites. The solo violin also provides a different sound from the many piano solos. The music is played by a 60-piece orchestra, plus the soloists (also including Maya Beiser on cello and a wordless chorus in *After Earth*). The pictures are mostly good vehicles for music that is surprisingly lacking in dynamic range and tension. You would expect more variability in volume and orchestration in the music from these films that sometimes come perilously close to background music as presented here. **Arthur Lintgen**

Further Listening: Howard: *Snow Falling on Cedars* (Decca)

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High-end audio done well, at any price, is a time machine to the moment and place the recording happened

Q&A

Shane Buettner

MIBS Distro, Intervention Records

Neil Gader

When did your interest in high-end audio begin? And why?

Around 1990 in Santa Barbara, California. My then-roommate took me to a store where what I think was a VPI TNT turntable and electrostatic speakers were playing *Also Sprach Zarathustra* and Pink Floyd's "Time." The parallels between my experience and the apes discovering the monolith in *2001: A Space Odyssey* can't be ignored.

What components made up your first "true" high-end system?

Same roommate (hi, Mike!) and I combined his AR turntable with a Grado cartridge and my HK integrated and Klipsch speakers. High end to us was Black Sabbath at neighbor-frightening, teeth-rattling levels.

How would you explain what "high-end" audio is?

A hi-fi's ability to mainline the emotional intention of the music to the listener(s) consistently and impart the feeling that you're there in the recording space with the players. High-end audio done well, at any price, is a time machine to the moment and place the recording happened.

Your journey in the high end has led to careers in audiojournalism, (including this magazine) and ultimately to founding Intervention Records and now MIBS Distro. Has this always been the plan?

Wow, I didn't know this looked anything like a plan! It's really the case that I've pursued my interests and formed great relationships over the years and learned a ton at every stop, starting here at TAS and *The Perfect Vision* with you, Robert [*Harley*], Jonathan [*Valin*]. Meeting great people has allowed amazing opportunities to manifest over the years. That might be a fancy way of saying I've made it up as I've gone along! I'm really blessed and thankful.

How would you describe the mission of MIBS Distro?

We want to have fun and be easy to work with—we are lucky to get to play music for people for a living. As far as the brands the company represents, my partner, Isaac Markowitz and I started MIBS (Markowitz Isaac Buettner Shane, and yes, I put the BS in MIBS!) with Lyra. Delightful people to work with, making state-of-the-art, hand-crafted cartridges that speak to our DNA as aspirational enthusiasts. SAT is also a category-defining, ultra-performance luxury brand. But brands can also be state of the art at any price, if they're superior to what else is available in their range.

As a confirmed analog guy, do you have anything nice to say about digital and streaming?

I definitely self-identify as Analog Guy! But certainly, streaming is the best way to discover new music to buy on vinyl, and digital's improvement dramatically expands high-end audio's potential. Pono didn't succeed, but Neil Young going on TV and telling anyone who would listen that CDs and MP3s sucked was a watershed. In addition to 180g vinyl, my "record label" makes CDs and SACDs that sound wonderful and have a surprisingly analog feel to them. For me, it's that feel, not numbers or resolution, that matters with digital.

What interesting fact about Intervention Records might surprise audiophiles?

That I attend every mastering session. I can't just call on the phone during mastering to ask how the tapes sound. I defer a ton to Kevin Gray and the other great engineers I work with, but I have a lot of input. I know what I want, and I'm there in person to make sure I get it. To really know what I'm delivering to my customers I have to be in the room when the sonic choices are made and cut to lacquers.

Analog playback and vinyl are certainly riding a "wave" right now. Do you consider it sustainable?

Yes! Companies like Lyra, SAT, and others are making new discoveries and pulling more out of the grooves of records made in the 50s and 60s. Vinyl is still the most consistently compelling way to experience the emotional grip of music, and I think having music in a physically tangible form will matter even more as the rest of our lives disappear into the internet cloud. The analog experts who facilitate this will always have profoundly grateful customers and friends.

What are the greatest challenges confronting the high-end industry?

Aside from needing more growth with younger generations, a related issue is lack of economy of scale. Keeping prices from spiraling further looks like a real challenge that will make that first challenge even harder.

Outside of audio, what do you do for fun?

I love every minute I can get with my sons, now 19 and 15, and I've an amazing lady/partner in my life with two wonderful grown children. I watch Charles Bronson movies and other 70s fare…what's happening with 4k physical media is very much like the vinyl revival. Beyond that, I have a great dog and cat. I'm very focused on fitness and nutrition and great coffee.

What inspires you about your work?

Helping people experience their favorite music in the most emotionally powerful way possible. I love emails from folks saying records or gear they purchased from me was shared with their loved ones in a way that made their connection to the music more profound. This experience only happens when people give the music all their attention, so the music is alive in space. That never gets old! tas

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